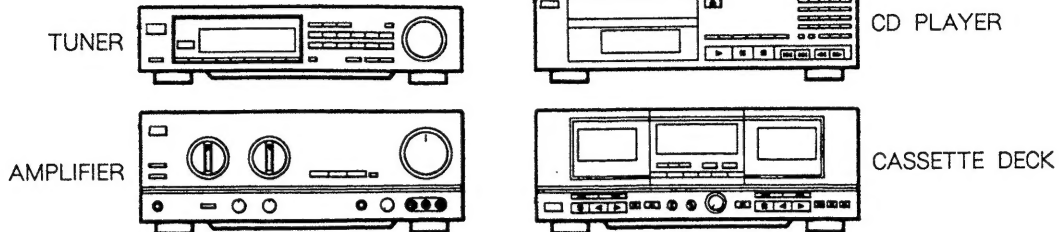


# LBT-D905CD

## SERVICE MANUAL

### REVISED

*UK Model*  
*E Model*



- LBT-D905CD are composed of following models. As for the service manual, it is issued for each component model, then, please refer to it.

#### COMPONENT MODEL NAME FOR LBT-D905CD

TUNER	ST-D905
AMPLIFIER	TA-D905
DIGITAL SURROUND PROCESSOR	SDP-D905
CASSETTE DECK	TC-D905
CD PLAYER	CDP-M72
REMOTE COMMANDER	RM-S905

#### SUPPLIED ACCESSORIES

Remote commander (1)  
Batteries Sony SUM-3 (NS) (2)  
FM wire antenna (1)  
AM loop antenna (1)  
Audio connecting cords (long) (2)  
Audio connecting cords (short) (3)  
AU BUS cord (1)  
Digital optical cord (1)

**Design and specifications subject to change without notice.**

#### PARTS LIST

- items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Part No.	Description
1-501-369-11	ANTENNA (UK)
1-501-374-11	ANTENNA, LOOP
1-559-654-11	CORD, SPEAKER (E, EA)
1-558-787-11	CORD, CONNECTION (2P-2P) (1m.)
1-558-787-21	CORD, CONNECTION (2P-2P) (0.5m.)
1-574-264-11	CORD, LIGHT PLUG
1-575-832-11	CORD (WITH CONNECTOR) (3P×5)
3-753-425-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/ SPANISH/CHINESE) (E/EA Model)
3-753-425-41	MANUAL, INSTRUCTION (ENGLISH) (UK Model)
* 4-946-362-01	INDIVIDUAL CARTON (UK Model)
* 4-946-381-01	INDIVIDUAL CARTON (E/EA Model)
1-465-774-11	REMOTE COMMANDER (RM-S905) (UK/E Model)

EA: Saudi Arabia Model

## STEREO COMPONENT SYSTEM

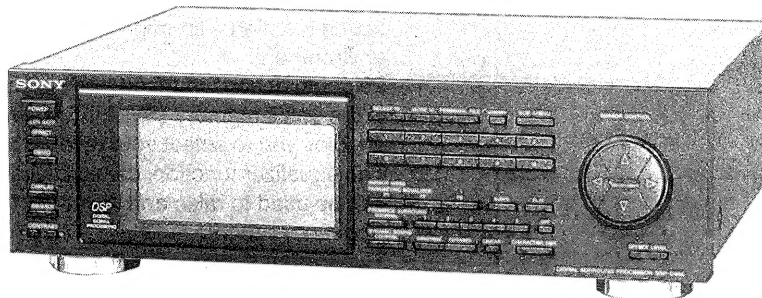
# SONY®

English  
92F1634-1  
Printed in Japan  
© 1992.6

# SDP-D905

## SERVICE MANUAL

*AEP Model  
UK Model  
E Model*



This set is a Digital Surround  
Processor block of the Following models.  
LBT-D905CD

### SPECIFICATIONS

Frequency response	2 Hz to 20 kHz $\pm 0.5$ dB (with digital input)
Total Harmonic Distortion	Less than 0.008 % (with digital input)
Signal-to-noise ratio	More than 110 dB (with digital input)
<b>General</b>	
Power requirement	240V AC, 50/60 Hz (UK model) 110V-120V/220-240V AC (E, Saudi Arabia models) 220-230V AC, 50/60 Hz (AEP, Germany, Italian models)
Power consumption	18W (AEP, Germany, Italian, UK models) 19W (E, Saudi Arabia models)
AC outlet	1 unswitched, 100W
Dimensions	Approx. 355 $\times$ 107 $\times$ 315.5 mm (w/h/d, including projections)
Weight	Approx. 3.6 kg
Supplied accessories	Audio connecting cords (2) Optical cord (1)

Design and specifications subject to change without notice.

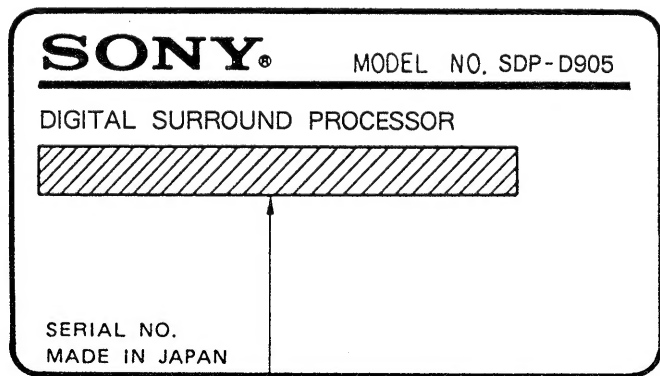
DIGITAL  
SURROUND PROCESSOR  
**SONY**<sup>®</sup>

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
SPECIFICATIONS .....		1
1. GENERAL .....		3
2. ADJUSTMENT .....		14
3. DIAGRAMS		
3-1. Circuit Boards Location .....		14
3-2. IC Discription .....		15
3-3. Brock Diagram .....		17
3-4. IC Brock Diagrams .....		19
3-5. Printed Wiring Boards - Main Section - ....		20
3-6. Schematic Diagram - Main Section - .....		23
3-7. Semiconductor Lead Layouts .....		27
3-8. Schematic Diagram - Panel Section - .....		28
3-9. Printed Wiring Boards - Panel Section - ....		31
4. EXPLODED VIEWS		
Overall Section .....		34
5. ELECTRICAL PARTS LIST .....		36

## MODEL IDENTIFICATION

— Specification Label —



AEP, Germany, Italian models : AC220 - 230V~50/60Hz  
 UK model : AC240V~50/60Hz  
 E, Saudi Arabia models : AC110 - 120V/220 - 240V  
 ~50/60Hz

## Using the Sound Manipulation Features

This unit is equipped with three sound adjustment functions – an equalizer function, a surround function and a dynamic sound function – for improving the sound in your listening environment.

20 combinations of these three functions are already preset in the unit's memory (SELECT 10 and MORE 10) and this enables you to select your favorite sound field easily.

The equalizer function, called Digital Parametric Equalizer, can be used to raise and lower the levels of specific frequency ranges.

The surround function, called Digital Presence Surround, can be matched to the music genre or source to effectively reproduce a feeling of "being there."

The dynamic sound function, called Digital Dynamic Sound, can be used to give a powerful feeling to music when listening at low volume levels and also reduce strident noise. Making full use of these three functions allows you to create a variety of different sounds and effects and to maximize your music listening enjoyment.

## Using the Sound Manipulation Features

## Obtaining Digital Surround Processor Effects

Press EFFECT so that the indicator is turned on. Digital surround processor effects can not be obtained if the indicator is not turned on.

Compare the results by switching EFFECT on and off. With the indicator turned on, sounds with the processor effects can also be recorded on a tape in a cassette deck.

## Adjusting the Effect Level

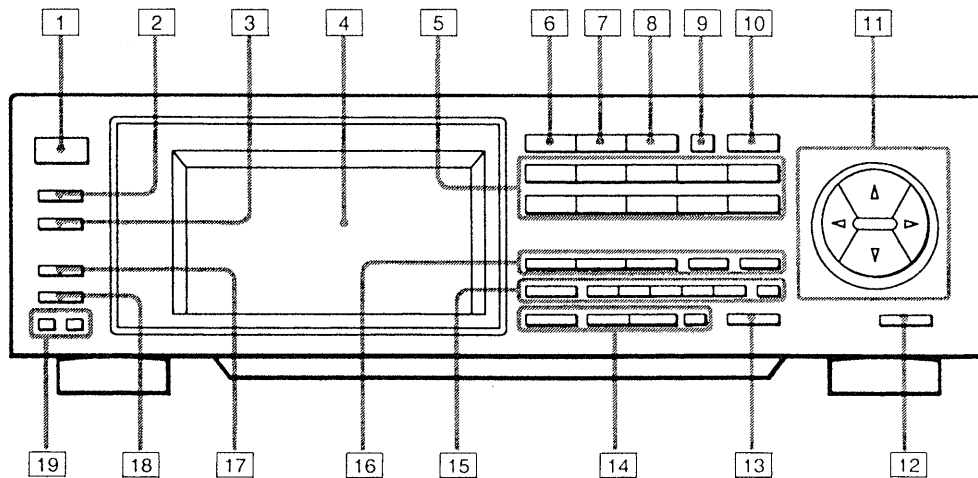
The degree of the processor effects on a selected source can be adjusted within the range of 0% to 100% in 20% intervals.

Press EFFECT LEVEL so that "EFFECT LEVEL" is indicated on the display, and then press ▲/► of the CURSOR CONTROL buttons to increase the effect level or ▼/◀ to decrease it.

## SECTION 1 GENERAL

This section is extracted from  
instruction manual.

### Location of Controls



Refer to the page indicated in ●.

- 1 POWER switch
- 2 EFFECT button and indicator 10
- 3 DEMO button 9
- 4 Display
- 5 Numeric buttons used with SELECT 10/MORE 10/PERSONAL FILE/SUB MENU.
- 6 SELECT 10 button and indicator 14
- 7 MORE 10 button and indicator 14
- 8 PERSONAL FILE button and indicator 28
- 9 MEMORY button 28, 30
- 10 SUB MENU button 32
- 11 CURSOR CONTROL buttons 10, 19, 27
- 12 EFFECT LEVEL button and indicator 10
- 13 CHARACTER EDIT button and indicator 30
- 14 DYNAMIC SOUND buttons  
CONTROL button and indicator 26  
COMPRESS button 26  
EXPANDER button 26  
LINEAR button 26
- 15 PRESENCE SURROUND buttons  
CONTROL button and indicator 22  
Numeric buttons 23  
OFF button 22
- 16 PARAMETRIC EQUALIZER buttons  
F1/F2/F3 (frequency) buttons and indicators 18  
SLOPE button 18  
FLAT button 20
- 17 DISPLAY button 12
- 18 DIMMER button 12
- 19 CONTRAST + / - buttons 12

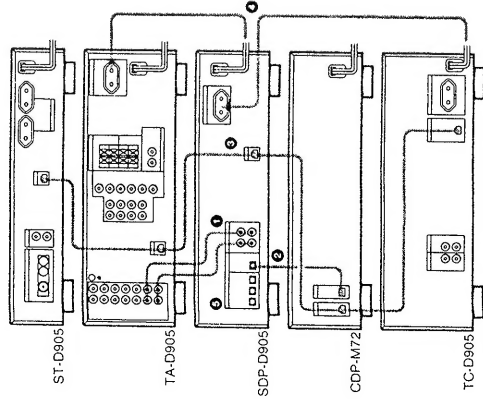


Instalação

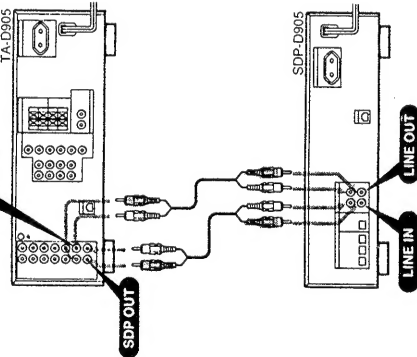
Installation

Instalación

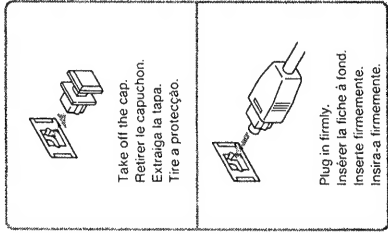
Instalação



1 Audio connecting cord  
Cordon de liaison audio  
Cable conector de audio  
Cabo de ligação de sinais de áudio



2 Optical cord  
Cable optique  
Cable optico  
Cabo optico



Take off the cap.  
Retirer le capuchon.  
Extraiga la tapa.  
Tire a protecção.

Plug in firmly.  
Insérer la fiche à fond.  
Insira-a firmemente.

3 Control cord (supplied with ST-D905)  
Câble de commande (fourni avec le ST-D905)  
Cable de control (suministrado con el ST-D905)  
Cabo de controle (fornecido com o ST-D905)

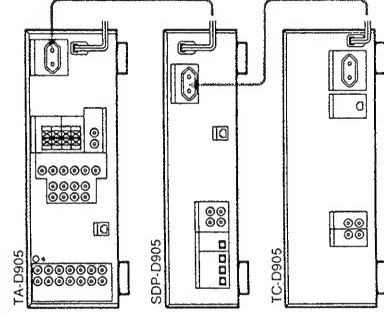
This connection allows you to control this unit with the remote commander supplied with ST-D905.

Ce branchement vous permet de piloter l'appareil avec la télécommande accompagnant le ST-D905.

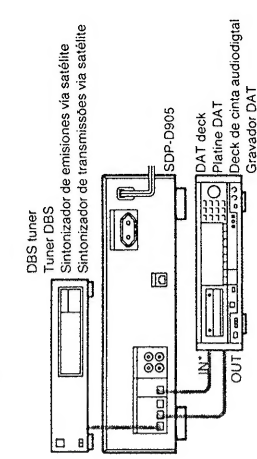
Esta conexión le permitirá controlar esta unidad con el telecomando suministrado con el ST-D905.

Esta ligação possibilita o controle deste aparelho com o telecomando fornecido com o ST-D905.

4 AC power cords  
Cordons d'alimentation secteur  
Cables de alimentación  
Cabos de alimentação CA

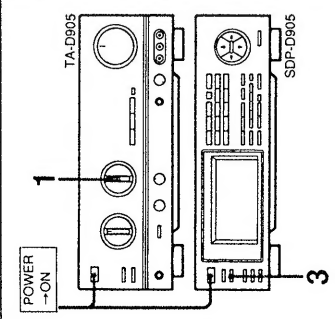


5 Optional equipment connected with optical cords  
Equipement en option raccordé avec des câbles optiques  
Equipos opcionales conectados con cables ópticos  
Equipamento opcional ligado com cabos ópticos.



\* Digital surround processor effects can not be recorded with this connection.  
\* Les effets produits par le traitement numérique de l'ambiance ne peuvent pas être enregistrés par cette connexion.  
\* Los efectos del procesador perimétrico digital no podrán grabarse con esta conexión.  
\* Os efeitos de processamento digital perimétricos não poderão ser gravados com esta ligação.

Demonstration Mode

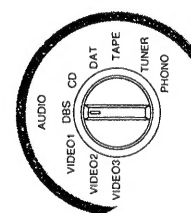


1

2

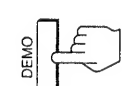
3

1 Select a source  
Sélectionner une source.  
Seleccione una fuente.  
Selecione uma fonte.



2 Play the source  
Jouer la source.  
Ponga la fuente en reproducción.  
Reproduza a fonte.

3



DEMO

This unit is provided with a demonstration mode to allow you to get a taste of the rich variety of effects possible with the three functions mentioned above.  
Before using the unit to make adjustments to the sound, use the demonstration mode to experience the various effects while watching the changes on the display and listening to the differences in the quality of the sound produced by these effects.

To stop the demonstration mode  
Press DEMO again or any button other than the POWER switch.

Arrêt du mode démonstration  
Appuyer de nouveau sur la touche DEMO ou sur toute autre touche que l'interrupteur d'alimentation POWER.

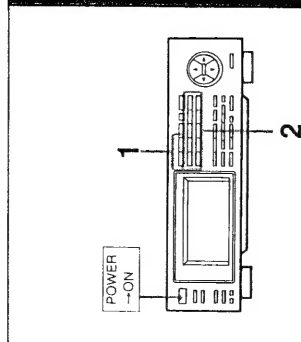
Para cesar el modo de demostración  
Vuelva a presionar DEMO o cualquier otra tecla, excepto el interruptor POWER.

Para interromper o modo de demonstração  
Pressione DEMO novamente ou qualquer outra tecla, excepto POWER.



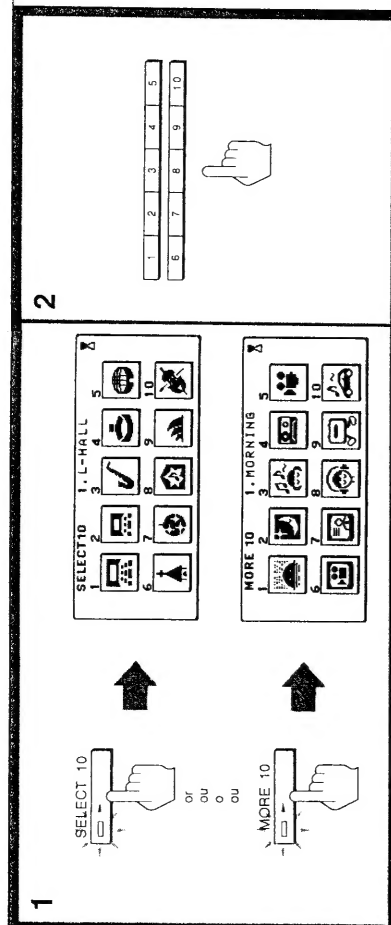
## Adjusting the Sound with Preset Settings - SELECT 10/MORE 10

This function allows you to adjust the sound with 20 preset combinations of equalizer, surround, and dynamic sound effects to enable you to set the sound quality to suit your taste and listening conditions.



## Réglage du son avec les préréglages - SELECT 10/MORE 10

Cette fonction vous permet de régler le son à l'aide de 20 combinaisons de préréglage des effets produits par l'égaliseur, le traitement de l'ambiance et les basses dynamiques pour adapter la qualité du son à votre goût particulier et à votre environnement.



## Ajuste del sonido con ajustes memorizados - SELECT 10/MORE 10

Esta función le permitirá ajustar el sonido con 20 combinaciones de efectos de equalización, sonido perimétrico, y sonido dinámico para que pueda ajustar la calidad del sonido a su gusto o de acuerdo con las condiciones de escucha.

## Ajustes pré-programados - SELECT 10/MORE 10

Esta função possibilita o ajuste do som com 20 combinações de ajustes no equalizador, processador perimétrico, e compressor/expansor digital. Ajuste o som de acordo com suas preferências e o ambiente do local de escuta.

### SELECT 10 Preset Settings

- L-HALL**  
Gives the atmosphere of a large hall of which the seating capacity is more than 2000.
- S-HALL**  
Gives the atmosphere similar to an instrumental recital held in a small hall.
- JAZZ CLUB**  
Reproduces stressed sounds which are most likely created in a location surrounded with solid walls.
- STADIUM**  
Gives the atmosphere similar to a performance held in a stadium.
- ARENA(GYM)**  
Gives the atmosphere similar to a live concert held in a gym.
- CHURCH**  
Produces natural echo most likely created in surroundings such as in a church.
- DISCO**  
Reproduces disco-like sounds most likely created in surroundings with a solid floor and walls.

(to be continued)

### Préréglages SELECT 10

- L-HALL**  
Rend l'atmosphère d'un grand hall dont la capacité dépasse 2000 places.
- S-HALL**  
Rend l'atmosphère d'un récital de musique instrumentale dans une petite salle de concert.
- JAZZ CLUB**  
Reproduit les sons accentués d'un orchestre de jazz dans un local construit de murs épais.
- STADIUM**  
Reproduit l'atmosphère sonore d'un stade.
- ARENA (GYM)**  
Rend l'atmosphère musicale d'un concert se tenant dans un stade couvert.
- CHURCH**  
Produit l'écho naturel d'une église.
- DISCO**  
Rend des sonorités similaires à l'ambiance créée par un lieu au sol et murs résistants.

(à suivre)

### Ajustes memorizados en SELECT 10

- L-HALL (Sala grande)**  
Ofrece la atmósfera de una sala grande con una capacidad de más de 2000 asientos.
- S-HALL (Sala pequeña)**  
Ofrece una atmósfera similar a la de un recital instrumental celebrado en una sala pequeña.
- JAZZ CLUB (Club de jazz)**  
Reproduce el sonido tenso que suele producirse en un lugar rodeado por paredes sólidas.
- STADIUM (Estadio)**  
Ofrece una atmósfera similar a la de una actuación celebrada en un estadio.
- ARENA (GYM) (Gimnasio)**  
Ofrece una atmósfera similar a la de un concierto en vivo celebrado en un gimnasio.
- CHURCH (Iglesia)**  
Produce el eco natural que suele crearse en ambientes tales como una iglesia.
- DISCO (Discoteca)**  
Reproduce sonidos semejantes a los de una discoteca que suelen crearse en ambientes con piso y paredes sólidos.

(continúa en la página siguiente)

### Ajustes pré-programados SELECT 10

- L-HALL**  
Simula o ambiente de uma grande sala de concertos com capacidade superior a 2000 pessoas.
- S-HALL**  
Simula o ambiente de um recital de música instrumental numa pequena sala de concertos.
- JAZZ CLUB**  
Reproduz sons nítidos que provavelmente seriam criados em cômodos com paredes sólidas.
- STADIUM**  
Simula um ambiente similar a concertos ao vivo num estádio.
- ARENA**  
Simula o ambiente similar a concertos ao vivo em sala de desportos.
- CHURCH**  
Produz o eco natural que provavelmente seriam criados numa igreja.
- DISCO**  
Reproduz características de músicas do género disco, os sons que provavelmente seriam criados em locais com paredes e pisos sólidos.

(continua)

Adjusting the Sound with the Digital Parametric Equalizer

This feature allows you to adjust the sound by raising or lowering the levels of specific frequency ranges.

Réglage du son avec l'égalisation paramétrique numérique

Cette caractéristique vous permet de régler le son en augmentant ou diminuant le niveau de gamme de fréquence particulière

Ajuste del sonido con el equalizador paramétrico digital

Esta función le permitirá ajustar el sonido aumentando o disminuyendo los niveles de gamas de frecuencias específicas.

Ajustes com o equalizador paramétrico digital

Esta característica ajusta o som mediante o reforço ou a atenuação de uma dada gama de frequências.

1: POWER -ON button  
2: EFFECT button  
3: Frequency range selector (Low, Middle, High)  
4: Frequency level adjuster (SLOPE)

**1**

EFFECT

1 F1 F2 F3

**2**

Select the frequency range you wish to adjust  
Selectionner la gamme de fréquences à régler.  
Selecione la gama de frecuencias que desee ajustar

**3**

gentle  
doux  
suave

moderate  
modéré  
moderado

steep  
prononcé  
pronunciada

**4**

SLOPE

Each time the button is pressed, the slope level changes in 3 stages.  
A chaque pression exercée sur la touche, le niveau de pente change selon 3 étapes.  
Cada vez que presione la tecla, el nivel de pendiente cambiará en tres etapas  
A cada pressionar da tecla, o nível do declive altera-se em 3 estágios:

**5**

Repeat steps 2 to 4 if the level of another frequency range needs to be adjusted.  
Répéter les étapes 2 à 4 si le niveau d'une autre gamme de fréquence doit être ajusté.  
Repita los pasos 2 a 4 si necesita ajustar el nivel de otra gama de frecuencias.  
Repita os passos de 2 a 4 se necessita ajustar o nível de uma outra gama de frequências.

Approximately 10 seconds after the adjustment, the normal indication will resume.  
To restore it more quickly, press the frequency button (F1/F2/F3) which is illuminated.

Button	Frequency range
F1	Low range
F2	Middle range
F3	High range

Environ 10 secondes après le réglage, l'indication originale revient. Appuyer sur la touche de fréquence (F1/F2/F3) illuminée pour la rétablir plus rapidement.

Touche	Gamme de fréquence
F1	Gamme basse fréquence
F2	Gamme moyenne fréquence
F3	Gamme haute fréquence

Aproximadamente 10 segundos después del ajuste, se reanudará la indicación normal. Para reanudarla con mayor rapidez, presione la tecla de frecuencia (F1/F2/F3) que esté encendida.

Tecla	Gama de frecuencias
F1	Gama baja
F2	Gama media
F3	Gama alta

Cerca de 10 segundos após o ajuste, retorna-se a indicação normal. Para obter mais rapidamente a indicação normal, pressione a tecla de frequências (F1/F2/F3) que estiver iluminada.

Tecla	Gama de frequências
F1	Gama baixa
F2	Gama média
F3	Gama alta

**Note**  
If two crests or troughs on the equalizer curve are combined and the peak of the resulting crest or trough exceeds  $\pm 12$  dB, "OVER" will be indicated in the display.

**Remarque**  
Si les crêtes et creux de la courbe d'égalisation se combinent de telle sorte que la crête ou le creux dépasse  $\pm 12$  dB, l'indication "OVER" est affichée.

**Nota**  
Si dos crestas o senos de la curva de equalización se combinan y el pico de la cresta o el seno resultante sobrepasa los  $\pm 12$  dB, en el visualizador se indicará "OVER".

**Nota**  
Se dois picos na curva de equalização forem combinados, e o pico resultante exceder  $\pm 12$  dB, OVER será indicada no mostrador.

## Using the Digital Presence Surround Effects

By using this unit's various surround effects, you can create a feeling of presence similar to being in a concert hall or stadium.

## Utilisation des effets numériques d'ambiance

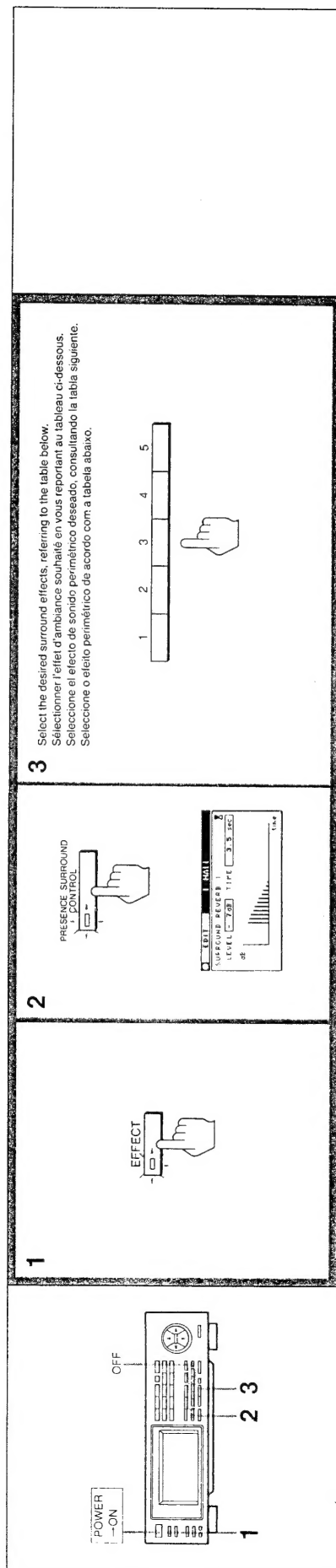
Lorsque vous utilisez les effets d'ambiance divers vous pouvez créer une atmosphère ressemblant à celle que vous auriez lors d'un concert ou dans un stade.

## Empleo de los efectos perimétricos de presencia digital

Empleando los diversos efectos de sonido perimétrico de esta unidad, podrá crear una sensación de presencia similar a la experimentada en una sala de conciertos o un estadio.

## Efeito perimétrico digital

Mediante o uso dos vários efeitos perimétricos, pode-se simular a sensação de estar presente numa sala de concertos ou num estádio.



1	REVERB 1	Atmosphere of a large concert hall (for classical music)
2	REVERB 2	Atmosphere of a stadium (reverberations from far away)
3	REVERB 3	Atmosphere of a large stone church (long reverberations including high frequency sound)
4	EARLY REFLECTION 1	Sound of live concert
5	EARLY REFLECTION 2	Simulated stereo effect on monaural sources

### To cancel the surround effects

Press OFF.

1	REVERB 1	Atmosphère d'une grande salle de concert (pour musique classique)
2	REVERB 2	Atmosphère d'un stade (réverbération lointaine)
3	REVERB 3	Atmosphère d'une grande église de pierre (longue réverbération et son de haute fréquence)
4	EARLY REFLECTION 1	Son d'un concert en "live"
5	EARLY REFLECTION 2	Imite l'effet stéréo sur des sources monophoniques

### Annulation de l'effet d'ambiance

Appuyer sur OFF.

1	REVERB 1	Almósera de una sala de conciertos grande (para música clásica)
2	REVERB 2	Almósera de un estadio (reverberaciones procedentes de lejos)
3	REVERB 3	Almósera de una iglesia grande (reverberaciones de lejos que incluyen sonido de alta frecuencia)
4	EARLY REFLECTION 1	Sonido de un concierto en vivo
5	EARLY REFLECTION 2	Efecto estéreo simulado de fuentes monoaurales

### Para cancelar los efectos de sonido perimétrico

Presione OFF.

1	REVERB 1	simula o ambiente de uma grande sala de concertos (para músicas clássicas)
2	REVERB 2	simula o ambiente de estádios (reverberação distantes)
3	REVERB 3	simula grandes igrejas com paredes de pedra (longas reverberações incluindo sons de altas frequências)
4	EARLY REFLECTION 1	som de concertos ao vivo
5	EARLY REFLECTION 2	simula o efeito estéreo em materiais monofónicos

### Para cancelar os efeitos perimétricos

Pressione OFF.

### When operating with the remote commander

The DPS button in the remote commander corresponds to the PRESENCE SURROUND CONTROL button on the main unit. Every time the button is pressed, the surround effects switch in the following sequence:

1 → 2 → 3 → 4 → 5 → OFF

### Cuando emplee el telecomando

La tecla DPS del telecomando corresponde a la tecla PRESENCE SURROUND CONTROL de la unidad principal. Cada vez que se presione la tecla, el efecto de sonido perimétrico cambiará en la secuencia siguiente:

1 → 2 → 3 → 4 → 5 → OFF (Ausencia de efecto)

### Controle com o telecomando

A tecla DPS no telecomando corresponde à tecla PRESENCE SURROUND CONTROL no aparelho principal. A cada pressionar da tecla, os efeitos perimétricos são alterados como segue:

1 → 2 → 3 → 4 → 5 → OFF

Using the Digital Dynamic Sound

This unit is provided with two digital dynamic sound functions: compressor and expander (noise reduction) functions.

The compressor function is especially effective for making low volume sound more powerful although it can be enjoyed at normal volume levels. Also, it is effective for recording tapes meant for playing in a Walkman or car stereo. Since it has the effect of making low volume sound easier to hear over external noise.

The expander function can reduce disturbing noise between selections recorded on a tape. Therefore it is effective for playing tapes.

Utilisation du son dynamique numérique

Cet appareil est pourvu de deux fonctions de son dynamique: les fonctions de compression et d'expansion (réduction de bruit).

La fonction de compression est spécialement conçue pour rendre des sons de bas volume plus puissants, tout en étant écoutés à un niveau normal. Cette fonction agit tout particulièrement lors de l'enregistrement de cassettes destinées à un Walkman ou une chaîne stéréo pour automobile, car elle rend un son de faible volume plus facile à écouter, malgré les nuisances extérieures.

La fonction d'expansion permet de réduire les bruits gênants entre les plages d'une cassette. Elle est donc particulièrement efficace lors de la lecture de cassettes.

Empleo del sonido dinámico digital

Esta unidad dispone de dos funciones de sonido dinámico digital: funciones de compresión y expansión (reducción de ruido).

La función de compresión es especialmente efectiva para hacer el sonido de bajo volumen más potente aunque pueda disfrutarse a niveles de volumen normal. Además, será efectivo para grabar cintas que deseen reproducirse en un Walkman o en un sistema estéreo, porque tiene el efecto de hacer que el sonido de bajo volumen pueda oírse más fácilmente sobre el ruido externo.

La función de expansión puede reducir el ruido perturbador entre las canciones grabadas en una cinta. Por lo tanto, será efectivo para reproducir cintas.

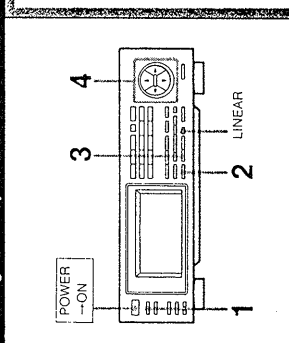
Compressor/Expansor

Este aparelho é equipado com duas funções de som digital: as funções de compressão e de expansão.

A função de compressão é especialmente efectiva para fazer com que sons de baixo volume sejam reforçados a um nível de volume normal. Também, é efectiva para gravação de fitas a serem escutadas em walkmans ou auto-estéreo, já que esta função compensa os sons de baixo volume em relação aos sons externos.

A função de expansão pode reduzir os ruídos de fundo entre músicas gravadas em fitas, sendo portanto efectivo para reprodução de cassetes.

**Obtaining the Compressor Function Effect**



**Función de compresión**

**Obtención del efecto de la función de compresión**

**4** Adjust the release time\* and efficiency.  
Régler la durée de disponibilité\* et l'efficacité.  
Ajuste el tiempo de liberación\* y la eficacia.  
Ajuste o tempo de desactivação da função\* e eficiência.

**3** COMPRESS

**2** DYNAMIC SOUND CONTROL

**1** EFFECT

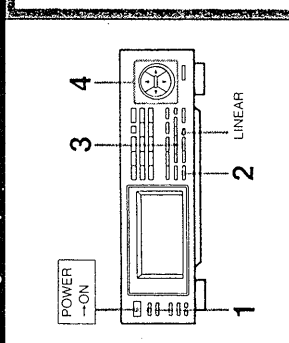
Lengthen the release time.  
Augmentation de la durée de disponibilité.  
Alarga el tiempo de liberación.  
Aumente o tempo de desactivação da função.

Shorten the release time.  
Diminution de la durée de disponibilité.  
Acorta el tiempo de liberación.  
Encurte o tempo de desactivação da função.

Increase the efficiency.  
Augmentation de l'efficacité.  
Aumenta la eficacia.  
Aumenta a eficiência.

Decrease the efficiency.  
Diminution de la durée.  
Diminuye la eficacia.  
Diminua a eficiência.

**Obtaining the Expander Function**



**Función de expansión**

**Obtención de la función de expansión**

**4** Adjust the release time\* and efficiency.  
Régler la durée de disponibilité\* et l'efficacité.  
Ajuste el tiempo de liberación\* y la eficacia.  
Ajuste o tempo de desactivação da função\* e eficiência.

**3** EXPANDER

**2** DYNAMIC SOUND CONTROL

**1** EFFECT

Lengthen the release time.  
Augmentation de la durée de disponibilité.  
Alarga el tiempo de liberación.  
Aumente o tempo de desactivação da função.

Shorten the release time.  
Diminution de la durée de disponibilité.  
Acorta el tiempo de liberación.  
Encurte o tempo de desactivação da função.

Increase the efficiency.  
Augmentation de l'efficacité.  
Aumenta la eficacia.  
Aumenta a eficiência.

Decrease the efficiency.  
Diminution de la durée.  
Diminuye la eficacia.  
Diminua a eficiência.

**To disengage the digital dynamic sound**  
Press LINEAR.

If the EFFECT button is pressed (so that the indicator turns off), all of the digital surround processor effects will be disengaged.

**Suppression du son dynamique numérique**  
Appuyer sur LINEAR.

Si l'on appuie sur la touche EFFECT (de manière à éteindre l'indicateur), tous les effets de traitement numérique du son d'ambiance sont libérés.

**Desactivación del sonido dinámico digital**  
Presione LINEAR.

Si presiona la tecla EFFECT (de forma que se apague el indicador), se desactivarán todos los efectos del procesador de sonido perimétrico digital.

**Desactivação do compressor/expansor**  
Pressione LINEAR.

Se EFFECT for pressionada (fazendo com que a indicação se desligue), todos os efeitos do processador perimétrico digital serão desactivados.

## Storing the Individually-Adjusted Sound – Personal File

By storing the individual digital surround processor effects in the memory, you can easily call up the settings at any desired time. You can store up to 10 combinations of the equalizer, surround, and dynamic sound functions, and also can give names to these individual settings by using 50 characters and a space.

## Mémorisation du son réglé par l'utilisateur – Fichier personnel

En mémorisant les effets de traitement numérique d'ambiance choisis selon vos préférences, il vous est facile de rappeler ces réglages au moment voulu. Vous pouvez mémoriser jusqu'à 10 combinaisons à l'aide des fonctions d'égalisation, d'ambiance et de son dynamique. Vous pouvez aussi donner à ces combinaisons un nom en vous servant des 50 caractères et de l'espace.

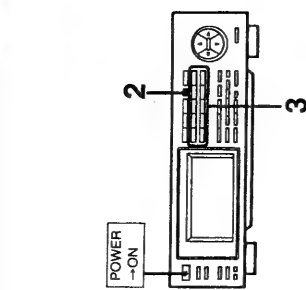
## Almacenamiento de sonido individualmente ajustado – Archivo personal

Almacenando los efectos del procesador de sonido perimétrico digital en la memoria, podrá invocar fácilmente los ajustes en el momento deseado. Usted podrá almacenar hasta 10 combinaciones de funciones de equalización, de sonido perimétrico, y de sonido dinámico, y también podrá asignarles nombres empleando 50 caracteres y un espacio.

## Armazenamento da combinação de ajustes – Personal File

Mediante o armazenamento de cada efeito digital na memória, pode-se facilmente obter os ajustes no momento desejado. Pode-se armazenar um máximo de 10 combinações de equalização, efeito perimétrico, e compressão/expansão. Designe a cada combinação, um memorando, dispondo-se de 50 caracteres e um espaço.

### Storing the Desired Adjustments

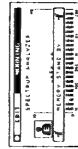
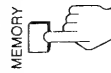


1 Adjust the Digital Parametric Equalizer (see page 18), Digital Presence Surround (see page 22), and Digital Dynamic Sound (see page 26).

Régler l'égaliseur paramétrique numérique (voir page 18), le son numérique d'ambiance (voir page 22) et le son numérique dynamique (voir page 26). Ajuste el equalizador perimétrico digital (consulte la página 18), el sonido paramétrico de presencia digital (consulte la página 23), y el sonido dinámico digital (consulte la página 27).

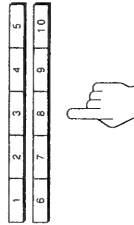
Ajuste o equalizador paramétrico digital (página 18), o efeito perimétrico digital (página 23), e compressão/expansão (página 27).

2



3

Assign a number to the individual adjustments while "MEMORY STAND BY" is indicated. Donner un nom à ces réglages personnels lorsque "MEMORY STANDBY" est affiché. Assigne un número a los ajustes individuales mientras se está indicando "MEMORY STAND BY". Designe um número para cada combinação de ajustes enquanto «MEMORY STAND BY» estiver indicada.



"P. FILE MEMORY" is indicated, and the adjustment is memorized in the selected number. "P. FILE MEMORY" est affiché et le réglage est mémorisé sous le numéro sélectionné. Aparecerá "P. FILE MEMORY", y el ajuste se memorizará en el número seleccionado. «P. FILE MEMORY» é indicado, e o ajuste é memorizado no número selecionado.

### Almacenamiento de los ajustes deseados

### Armazenamento dos ajuste desejados

### Calling up the Settings

Press PERSONAL FILE\* and then the numeric button in which the desired adjustment has been stored.

\* When using the remote commander, press SELECT (S10/M10/P.F). Memorized settings to be called up change in the following sequence:  
→ SELECT 10 (S10) → MORE 10 (M10) → PERSONAL FILE (P.F.) →

### Rappel des réglages

Appuyer sur "PERSONAL FILE", puis sur la touche numérique où le réglage souhaité a été mémorisé.

\* Si la télécommande est utilisée, appuyer sur SELECT (S10/M10/P.F). Les réglages mémorisés à rappeler changent dans l'ordre suivant:  
→ SELECT 10 (S10) → MORE 10 (M10) → PERSONAL FILE (P.F.) →

### Invocación de ajustes

Presione PERSONAL FILE\* y después la tecla numérica en la que haya almacenado el ajuste deseado.

\* Cuando emplee el telemando, presione SELECT (S10/M10/P.F). Los ajustes memorizados que podrán invocarse cambiarán en la secuencia siguiente:  
→ SELECT 10 (S10) → MORE 10 (M10) → PERSONAL FILE (P.F.) →

### Reobtenção dos ajustes

Pressione PERSONAL FILE\* e então a tecla numérica correspondente ao ajuste armazenado.

\* Ao utilizar o telecomando, pressione SELECT (S10/M10/P.F). Os ajustes armazenados reobtidos alterar-se-ão na seguinte ordem:  
→ SELECT 10 (S10) → MORE 10 (M10) → PERSONAL FILE (P.F.) →



Storing the Individually-  
Adjusted Sound - Personal File

Mémorisation du son réglé  
par l'utilisateur - Fichier personnel

Almacenamiento de sonido  
individualmente ajustado - Archivo personal

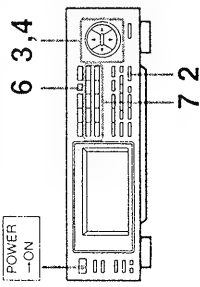
Armazenamento da combinação  
de ajustes - Personal File

Giving Names to the Individual Adjustments  
- Character Edit

Dénomination des réglages personnels  
- Montage de caractères

Asignación de nombres a los ajustes  
individualmente ajustados - Archivo personal

Designação de memorandos para a combinação  
de ajustes - Edição de memorandos



1 Adjust the sound, or call up the individual setting.  
Régler le son ou rappeler le réglage personnel.  
Ajuste el sonido, o invoque el ajuste individual.  
Ajuste o som, ou obtenha a combinação de ajustes já armazenada.

2 CHARACTER EDIT  
Cursor  
Cursur  
Cursor

3 Select a character.  
Choisir un caractère.  
Seleccione un carácter.  
Seleccione um carácter.

4 Move the cursor.  
Bouger le curseur.  
Mueva el cursor.  
Desloque o cursor.

5 Repeat steps 3 and 4.  
Répéter les étapes 3 et 4.  
Repita los pasos 3 y 4.  
Repita os passos 3 e 4.

6 MEMORY

7 Assign a number to the individual adjustment while "MEMORY STAND BY" is indicated.  
Designier un nombre au réglage personnel lorsque "MEMORY STAND BY" est affiché.  
Asigne un número al ajuste individual mientras se esté indicando "MEMORY STAND BY".  
Designie um número à combinação de ajustes enquanto «MEMORY STAND BY» estiver acesa.

The assigned personal file number and "P-FILE MEMORY" are indicated.  
Le numéro de fichier personnel désigné et "P-FILE MEMORY" sont affichés.  
Se indicarán el número asignado al archivo personal y "P-FILE MEMORY".  
O número designado e «P-FILE MEMORY» acendem-se.

To change the name

Repeat the above procedure from the beginning.

Modification du nom

Répéter la procédure précédente à partir du début.

Para cambiar el nombre

Repita el procedimiento anterior desde el comienzo.

Para alterar o memorando

Repita os procedimentos acima indicados a partir do início.

Available Characters

( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : % < = > ? (space)  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Use ◀ of the CURSOR CONTROL buttons to call up a previous character.  
Keep pressing ▲ or ▼ of the CURSOR CONTROL buttons to skip characters.

Caractères disponibles

( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : % < = > ? (espace)  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Utiliser ◀ des touches CURSOR CONTROL pour appeler le caractère précédent. Maintenir ▲ ou ▼ enfoncé sur les touches CURSOR CONTROL pour sauter des caractères.

Caractères disponibles

( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : % < = > ? (espacio)  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Emplee ◀ de las teclas CURSOR CONTROL para invocar un carácter anterior. Mantenga presionada ▲ o ▼ de las teclas CURSOR CONTROL para saltar caracteres.

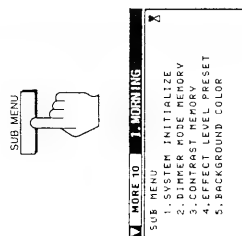
Caracteres disponíveis

( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : % < = > ? (espaco)  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Empreegue a tecla ◀ de CURSOR CONTROL para obter o carácter anterior.  
Mantenha ▲ ou ▼ de CURSOR CONTROL pressionada para saltar caracteres.

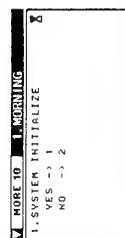
## Using the Sub-Menu Window

The unit is equipped with 5 other essential functions which are listed in the sub-menu window.  
Press SUB MENU and then a number for the desired function.



## Affichage du menu secondaire

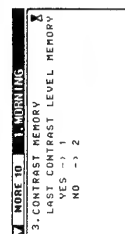
Cet appareil est équipé de 5 autres fonctions essentielles affichées sur le menu secondaire.  
Appuyez sur la touche SUB MENU, puis sur un numéro de la fonction souhaitée.



2



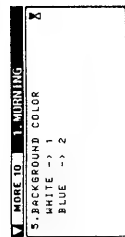
3



4



5



## Emploio de la ventanilla del submenú

La unidad dispone de otras 5 funciones esenciales indicadas en la ventanilla del submenú.  
Presione SUB MENU y después el número correspondiente a la función deseada.

## Mostrador sub-menu

O aparelho vem equipado com 5 outras funções essenciais que estão listadas no sub-menu.  
Pressione SUB MENU e então o número da função desejada.

### 1 SYSTEM INITIALIZE

All of the digital surround processor effects can be initialized.

By pressing 1, the settings of following items will return to the initial factory settings.

- Digital parametric equalizer (see page 18)
- Digital presence surround (see page 22)
- Digital dynamic sound (see page 26)
- Effect level (see page 10)
- Personal file (see page 28)
- Dimmer (see page 12)
- Contrast (see page 12)
- Effect level preset (see below)

### 2 DIMMER MODE MEMORY

The brightness of the display, individually set, can be memorized.

To memorize it, press 1.

If you press 2, the display becomes brighter every time the power is switched on.

### 3 CONTRAST MEMORY

The contrast level of the display, individually set, can be memorized.

To memorize it, press 1.

If you press 2, the contrast level becomes 50% every time the power is switched on.

### 4 EFFECT LEVEL PRESET

The effect level can be preset and memorized prior to calling up SELECT 10 or MORE 10 settings.

Three preset effect levels are provided. Press 1, 2, or 3 according to the desired level.

The effect level of the setting being used cannot be changed. To change it, recall the same setting or another one after pressing 1, 2, or 3.

### 5 BACKGROUND COLOR

The background color of the display is selectable. There are two alternatives; white and blue.

Press 1 for white or 2 for blue.

### 1 SYSTEM INITIALIZE

Podrán inicializarse todos los efectos del procesador perimétrico digital. Al presionar 1, los ajustes de los ítemes siguientes volverán a los inicialmente realizados en fábrica.

- Equalizador paramétrica digital (consulte la página 19)
- Sonido paramétrico de presencia digital (consulte la página 23)
- Sonido dinámico digital (consulte la página 27)
- Nivel del efecto (consulte la página 11)
- Nivel del efecto (consulte la página 11)
- Archivo personal (consulte la página 29)
- Brillo (consulte la página 13)
- Contraste (consulte la página 13)
- Nivel de los ajustes memorizados (consulte más abajo)

### 2 DIMMER MODE MEMORY

El brillo del visualizador, individualmente memorizarse. Para memorizarlo, presione 1.

Si presiona 2, el visualizador se volverá más brillante cada vez que conecte la alimentación.

### 3 CONTRAST MEMORY

El nivel de contraste del visualizador, individualmente ajustado, podrá memorizarse.

Para memorizarlo, presione 1.

Si presiona 2, el nivel del contraste se volverá el 50% cada vez que conecte la alimentación.

### 4 EFFECT LEVEL PRESET

El nivel del efecto podrá preajustar y memorizarse antes de invocar los ajustes de SELECT 10 y MORE 10.

Existen tres niveles de efecto preajustados. Presione 1, 2, o 3 de acuerdo con el nivel deseado.

El nivel del efecto de un ajuste que esté empleándose no podrá cambiarse. Para cambiarlo, invoque el mismo ajuste u otro después de presionar 1, 2, o 3.

### 5 BACKGROUND COLOR

El color de fondo del visualizador es seleccionable. Existen dos alternativas: blanco y azul.

Presione 1 para blanco o 2 para azul.

### 1 SYSTEM INITIALIZE

Todos os efeitos do processador perimétrico digital são apagados.

Pressionando-se 1, os ajustes dos seguintes ítems retornam aos níveis pré-programados na fábrica.

- Equalizador paramétrico digital (página 19)
- Efeito perimétrico digital (página 23)
- Compressão/Expansão (página 27)
- Nivel do efeito (página 11)
- Personal File (página 29)
- Iluminação (página 13)
- Contraste (página 13)
- Nivel do efeito pré-programado (veja abaixo)

### 2 DIMMER MODE MEMORY

A iluminação do mostrador, ajustado por ítem, pode ser armazenada.

Para armazenar, pressione 1.

Se pressionar 2, a iluminação do mostrador torna-se mais intensa cada vez que se liga a alimentação.

### 3 CONTRAST MEMORY

O nível de contraste do mostrador, ajustado por ítem, pode ser armazenado.

Para armazenar, pressione 1.

Se pressionar 2, o nível de contraste fica a 50% a cada vez que se liga a alimentação.

### 4 EFFECT LEVEL PRESET

O nível do efeito pode ser pré-programado e armazenado antes de obter os ajustes SELECT 10 ou MORE 10.

3 níveis de efeitos estão programados. Pressione 1, 2, ou 3 de acordo com o nível desejado.

O nível do efeito do ajuste em uso não pode ser alterado. Para alterar, reobtenha o mesmo ajuste ou um outro depois do pressionamento de 1, 2, ou 3.

### 5 BACKGROUND COLOR

É possível selecionar a cor de fundo do mostrador, entre branco e azul.

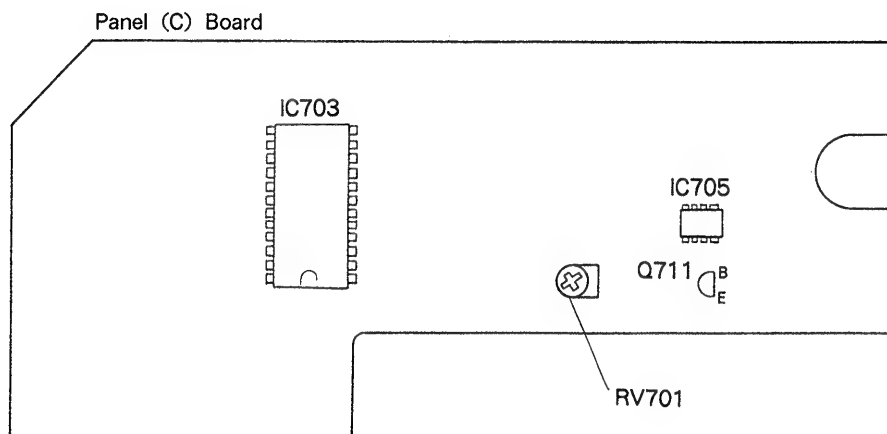
Pressione 1 para o branco ou 2 para o azul.

## SECTION 2 ADJUSTMENT

### 【Electrical adjustment】

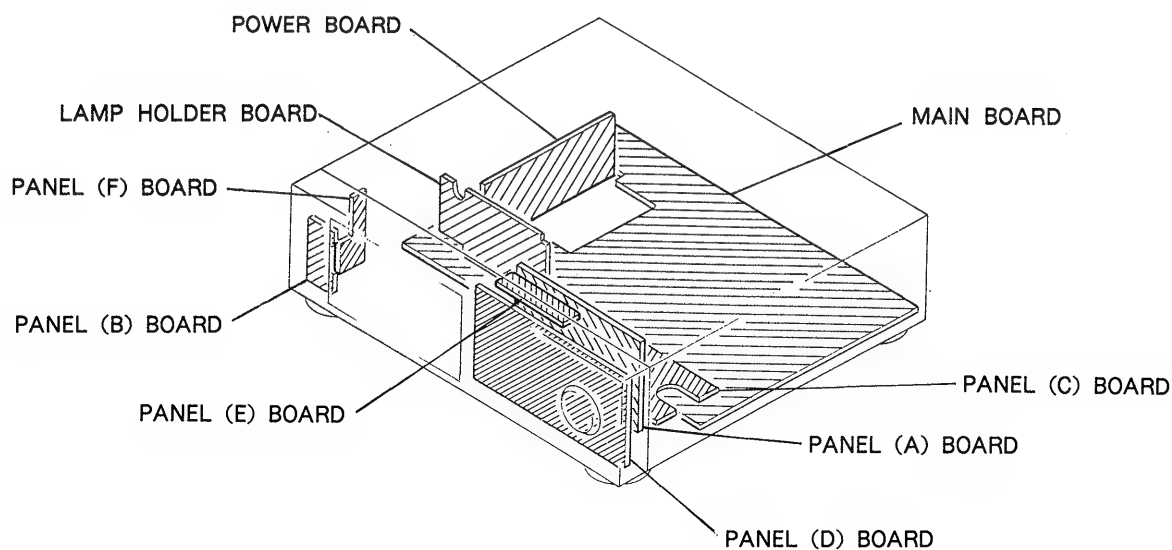
#### • Contrast adjustment

Adjust RV701 so that the voltage between the collector and the emitter of Q711 is set to 14.2 V in room temperature (approximately 25 °C) (Optimal condition when contrast is 50 %)



## SECTION 3 DIAGRAMS

### 3-1. CIRCUIT BOARDS LOCATION



### 3-2. IC DESCRIPTION

#### IC701 Feature Control Microcomputer (HD6435328F6)

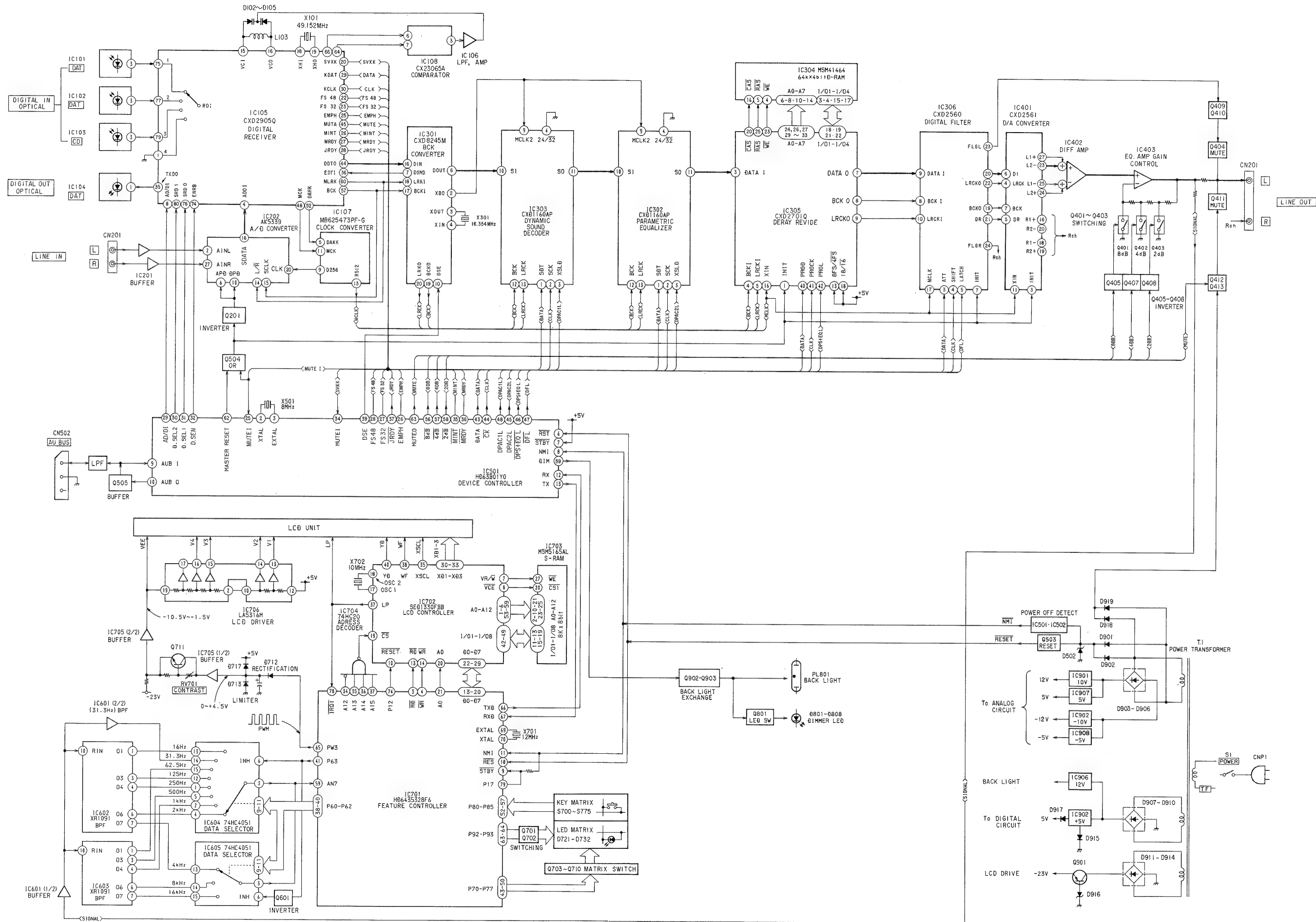
Displaying of LCD and LED is controlled in accordance with spectrum analyzer data input, key input, and audio bus input. Data of equipments' settings are transmitted to the device control microcomputer (IC501) in serial communication.

Pin No.	Pin Name	I/O	Description
1	R/W	—	} Not used.
2	$\overline{DS}$	—	
3	$\overline{RD}$	O	Data reading signal output to IC702 (LCD controller)
4	$\overline{WR}$	O	Data writing signal output to IC702 (LCD controller)
5	Vcc	—	Power supply terminal (+5 V)
6	MD0	I	Mode setting input (Fixed to "L".)
7	MD1	I	Mode setting input (Fixed to "H".)
8	MD2	I	Mode setting input (Fixed to "L".)
9	$\overline{STBY}$	I	Hardware standby mode input
10	$\overline{RES}$	I	Reset input
11	$\overline{NMI}$	I	Power interrupt detection input. When it is set to "L", P17 (pin 79) is set to after the backup processing.
12	Vss	—	GND
13~20	D0~D7	I/O	Data bus to IC702 (LCD contrller)
21	A0	O	IC702 (LCD controller) internal register select output
22~28	A1~A7	O	Address output. Not used.
29	Vss	—	GND
30~33	A8~A11	O	Address output. Not used.
34~37	A12~A15	O	Address output to generate IC702 (LCD controller) $\overline{CS}$ signal
38~41	P60~P63	O	BPF select for spectrum analyzer to IC604 and IC605 (multiplexer)
42	Vcc	—	Power supply terminal (+5 V)
43~50	P70~P77	O	Key and LED matrix output
51	AVss	—	Analog GND
52~58	P80~P86	I	Key matrix input
59	AN7	I	Spectrum analyzer data input (analog)
60	AVcc	—	Analog system power supply terminal (+5 V)
61	P90	—	Not used.
62	P91	—	Not used.
63,64	P92,P93	O	LED matrix output
65	PW3	O	LCD contrast adjustment PWM output (Darker contrast when closer to 100%)
66	TXD	O	Serial communication output to IC501 (device control microcomputer)
67	RXD	I	Serial communication input to IC501 (device control microcomputer)
68	P97	—	Not used.
69	EXTAL	I	Clock input (12 MHz)
70	XTAL	O	Clock output
71	Vss	—	GND
72	CK	—	Not used.
73	E	—	Not used.
74	P12	O	Reset output to IC702 (LCD controller)
75~77	P13~P15	—	Not used.
78	$\overline{IRQ1}$	I	LCD X driver latch pulse input
79	P17	O	Output ( $\overline{STBY}$ (pin 9) is set to "L") to physically set the backup mode when the power is set to OFF.
80	$\overline{A5}$	—	Not used.

**IC702 LCD controller (SED1330FBB)**

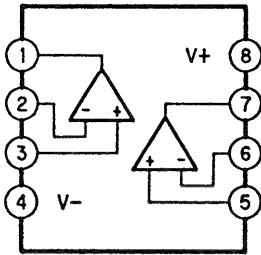
Character data transmitted from the panel microcomputer (IC701) are stored in the display memory (IC703), read out periodically, converted to LCD signal, and output.

Pin No.	Pin Name	I/O	Description
1~6	VA5~VA0	O	Address output to IC703 (display memory)
7	VR/ $\overline{W}$	O	Read/write signal output to IC703 (display memory)
8	$\overline{VCE}$	O	Chip select output to IC703 (display memory)
9	$\overline{REF}$ NC	O	Test output. Not used.
10	$\overline{RES}$	I	System reset input
11	SYNC NC	O	Test output. Not used.
12	CLO NC	O	
13	$\overline{RD}$	I	Data read signal input from IC701 (panel microcomputer)
14	$\overline{WR}$	I	Data write signal input from IC701 (panel microcomputer)
15	SEL2	I	Interface bus select (Set always to GND.)
16	SEL1	I	Interface bus select (Set always to GND.)
17	XG	I	Clock input (10 MHz)
18	XD	O	Clock output
19	$\overline{CS}$	I	Chip select input from the address decoder (IC704)
20	A0	I	Internal register select input
21	V <sub>DD</sub>	—	Power supply terminal (+5 V)
22~29	D0~D7	I/O	Data bus to IC701 (panel microcomputer)
30~33	XD3~XD0	O	Data output to LCD X driver
34	XECL	O	Enable chain clock output to LCD X driver. Not used.
35	XSCL	O	Data shift clock output to LCD X driver
36	V <sub>SS</sub>	—	GND
37	LP	O	LCD X driver latch pulse output
38	WF	O	Frame signal output
39	YDIS	O	LCD display OFF output. Not used.
40	YD	O	Data output to LCD Y driver
41	YSCL	O	Data shift clock output to LCD Y driver. Not used.
42~49	VD7~VD0	I/O	Data bus to IC703 (display memory)
50~59	VA15~VA6	O	Address output (VA13 to VA15 are not used) to IC703 (display memory).
60	NC	—	

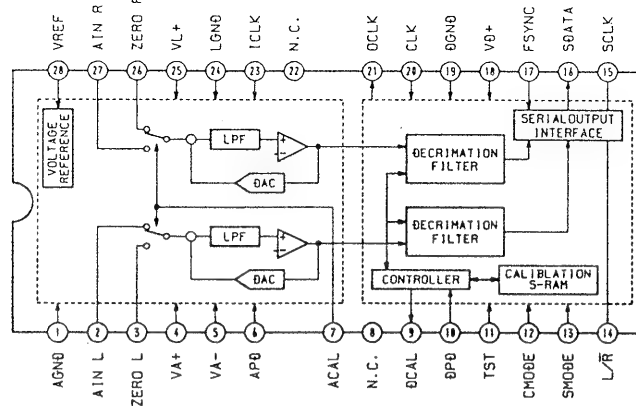


## 3-4. IC BROCK DIAGRAMS

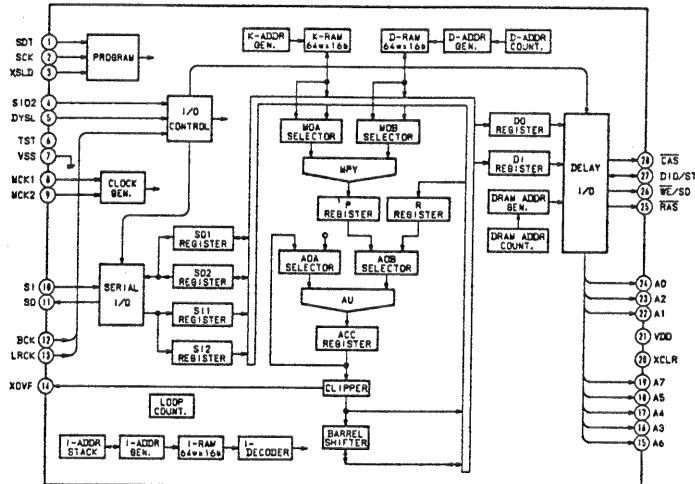
• IC201, 404, 705 M5218AP



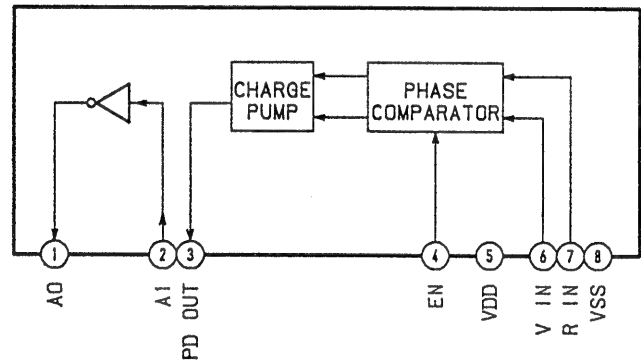
• IC202 AK53389



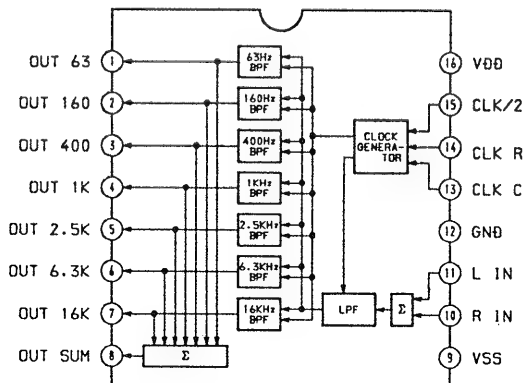
• IC302,303 CXD1160AP



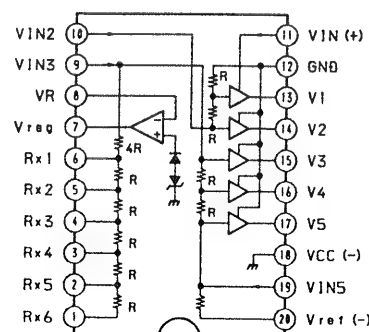
• IC108 CX23065A



• IC602,603 XR1091



• IC706 LM5316M



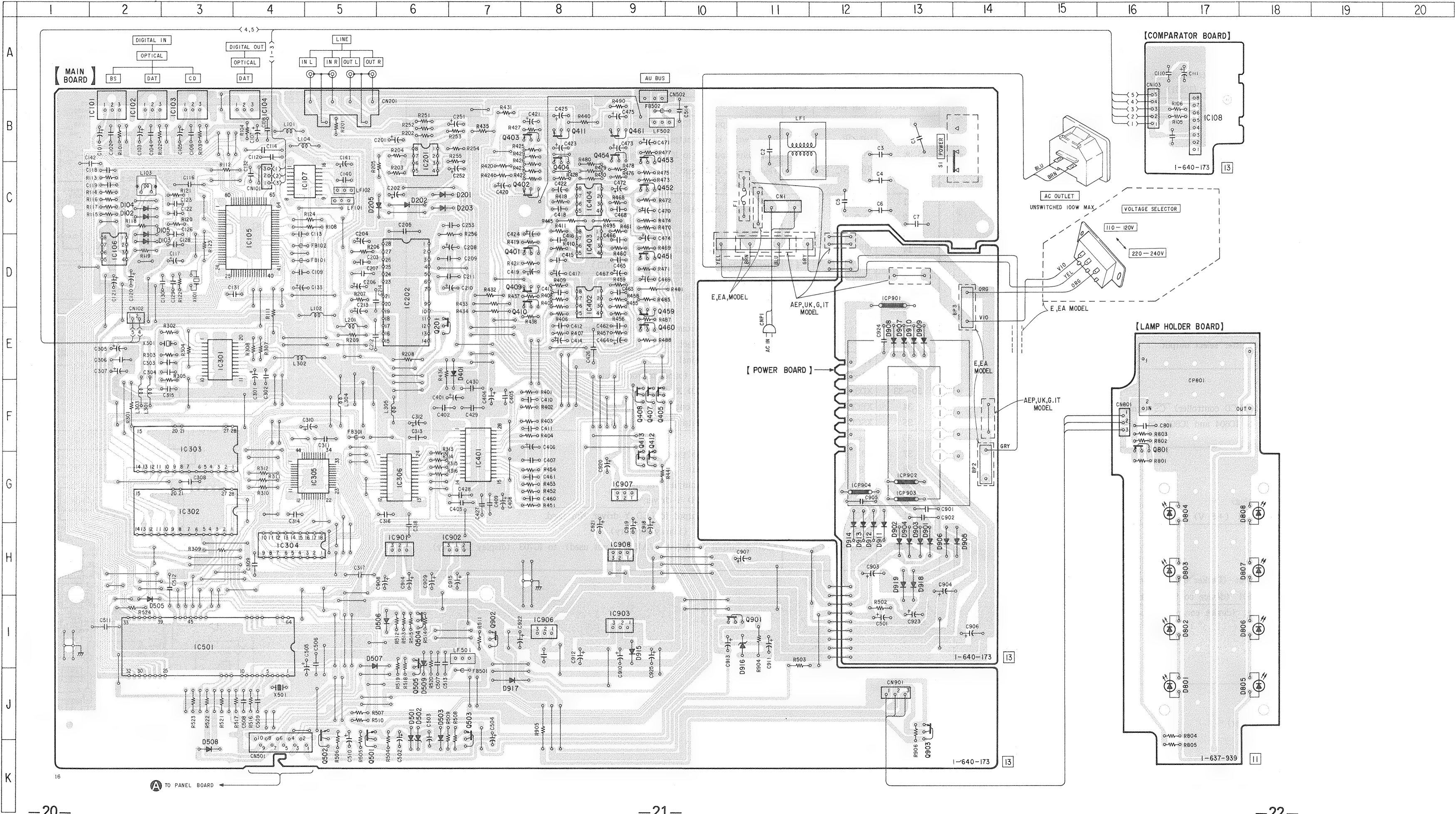


3-5. PRINTED WIRING BOARDS - MAIN SECTION - • See page 27 for Semiconductor Lead Layouts.

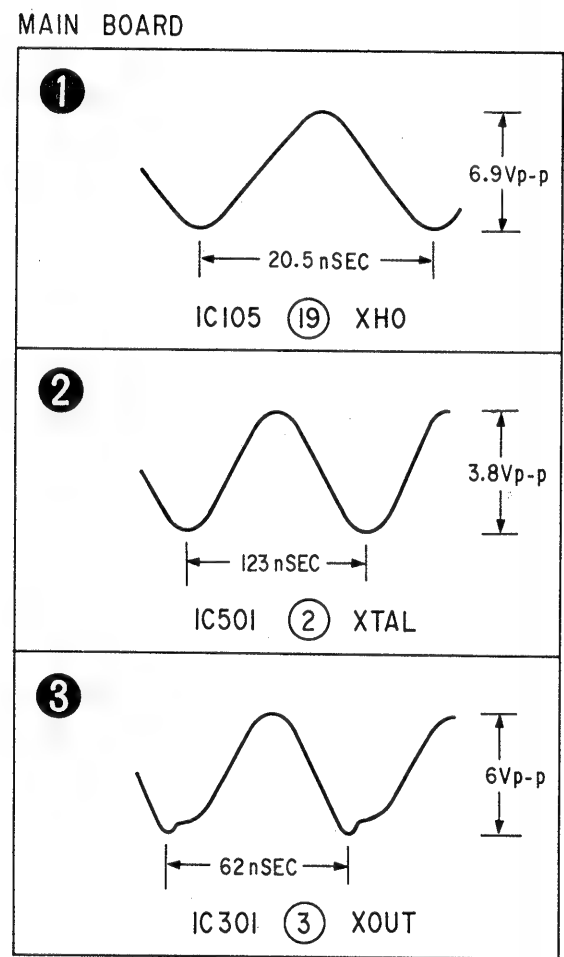
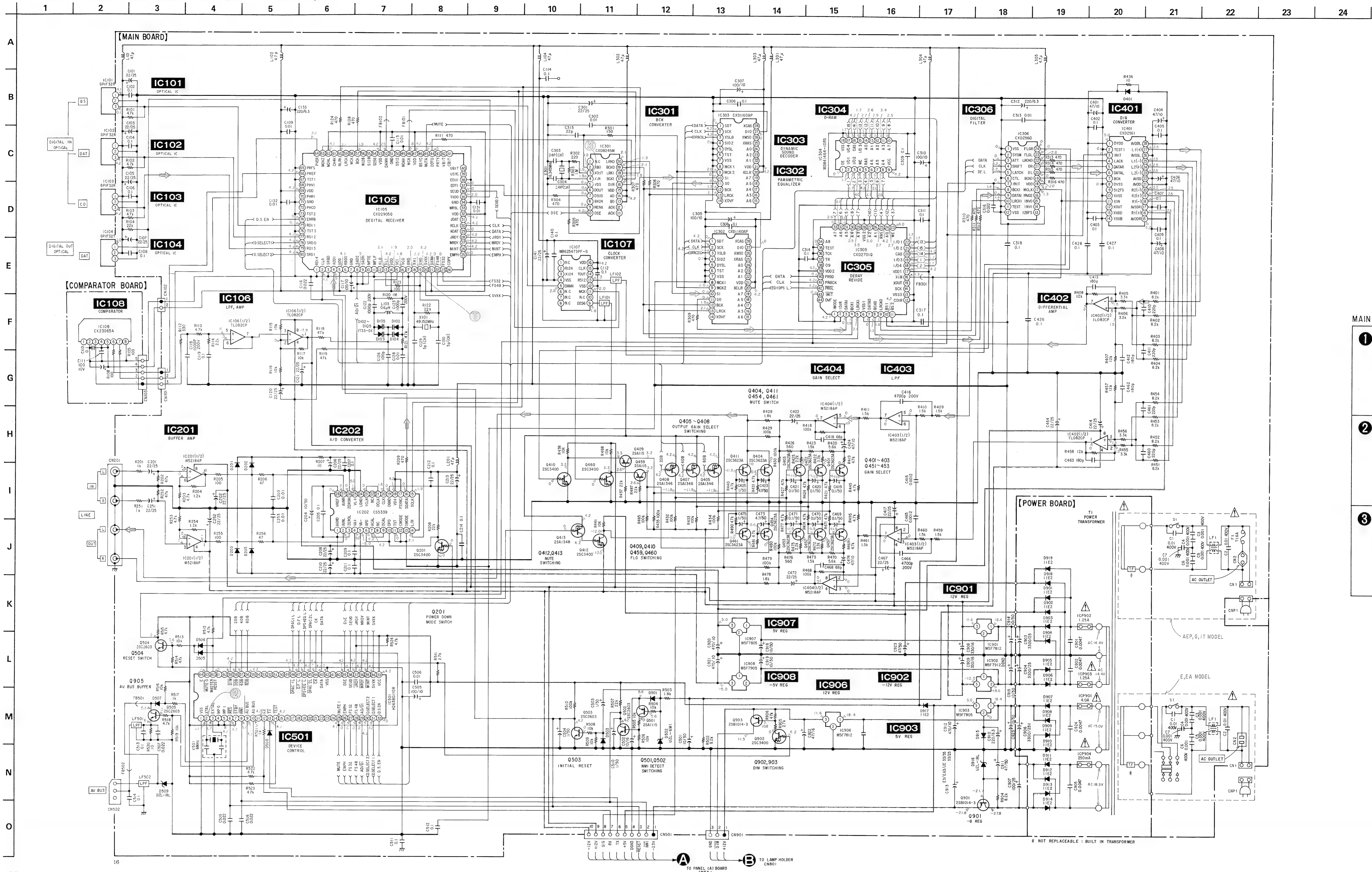
• Semiconductor Location			
Ref. No.	Location	Ref. No.	Location
D102	C-2	IC908	H-9
D103	D-2	Q201	E-6
D104	C-2	Q401	D-8
D105	D-2	Q402	C-8
D201	C-6	Q403	B-8
D202	C-6	Q404	C-8
D203	C-6	Q405	F-9
D205	C-6	Q407	F-9
D401	E-7	Q408	D-8
D501	J-6	Q409	D-8
D502	J-6	Q410	D-8
D503	J-6	Q411	B-8
D505	I-2	Q412	G-9
D506	I-2	Q413	G-9
D507	I-5	Q451	D-9
D508	K-3	Q452	C-9
D509	J-6	Q453	B-9
D801	J-17	Q454	B-9
D802	I-17	Q459	E-9
D803	H-17	Q460	E-9
D804	G-17	Q461	B-9
D805	J-18	Q501	K-5
D806	I-18	Q502	K-5
D807	H-18	Q503	J-7
D808	G-18	Q504	I-6
D901	H-13	Q505	J-6
D902	H-13	Q801	F-16
D903	H-13	Q901	I-11
D904	H-13	Q902	I-7
D905	H-14	Q903	J-13
D906	H-13		
D907	E-13		
D908	E-13		
D909	E-13		
D910	E-13		
D911	H-13		
D912	H-12		
D913	H-12		
D914	H-12		
D915	I-9		
D916	I-11		
D917	J-7		
D918	H-13		
D919	H-13		
IC101	B-2		
IC102	B-2		
IC103	B-3		
IC104	B-4		
IC105	D-4		
IC106	D-2		
IC107	C-4		
IC108	B-17		
IC201	B-6		
IC202	D-6		
IC301	F-3		
IC302	G-3		
IC303	F-3		
IC304	H-4		
IC305	G-5		
IC306	G-5		
IC401	G-7		
IC402	D-8		
IC403	D-8		
IC404	C-8		
IC501	I-3		
IC901	H-6		
IC902	H-7		
IC903	I-9		
IC906	I-8		
IC907	G-9		

Note on Mounting Diagram:  
• : parts extracted from the component side.  
• : component side.

G : Germany  
IT : Italian  
EA : Saudi Arabia







**Note on Schematic Diagram:**

- All capacitors are in  $\mu F$  unless otherwise noted.  $pF$ :  $\mu F$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- : nonflammable resistor.
- : fusible resistor.

**Note:** The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

• : B+ Line

• : B- Line

• no mark : No-signal, PHONO MODE

• Voltage and waveforms are dc with respect to ground under no-signal conditions.

• Voltages are taken with a VOM (Input impedance 10M  $\Omega$ )

• Voltage variations may be noted due to normal production tolerances.

• Circled numbers refer to waveforms.

• Signal path.

• : CD

G : Germany  
IT : Italian  
EA : Saudi Arabia


**4**

4.8Vp-p

83 nSEC

IC701 (70) XTAL

5



100 nSEC

4.8 Vp-p

IC702 (18) OSC 2

**MSF7812L**  
**TA7805S**  
**TA7905S**

**GP1F32R**  
**GP1F32T**

**CXD2561M**

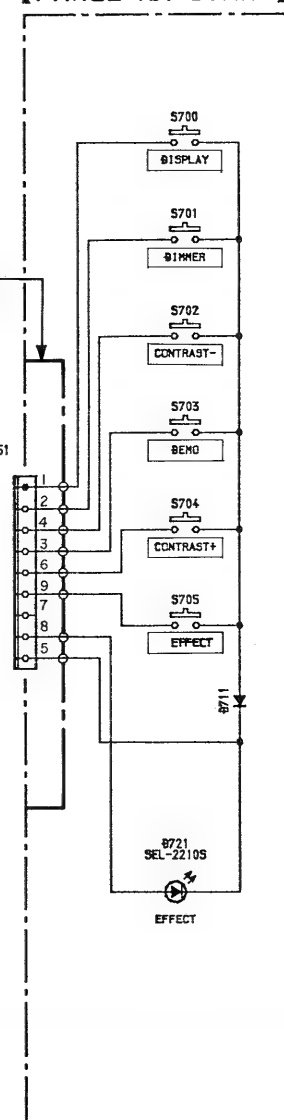
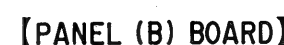
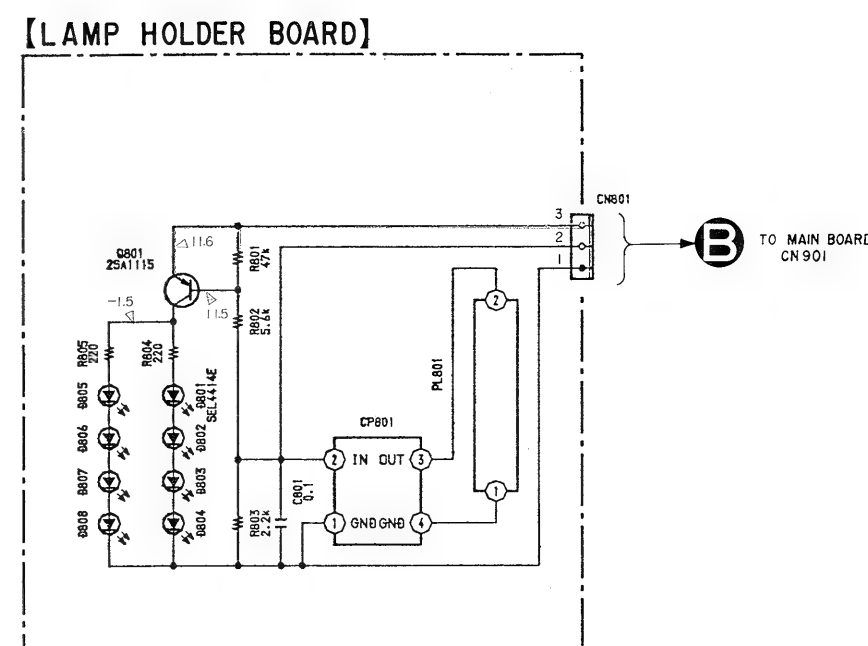
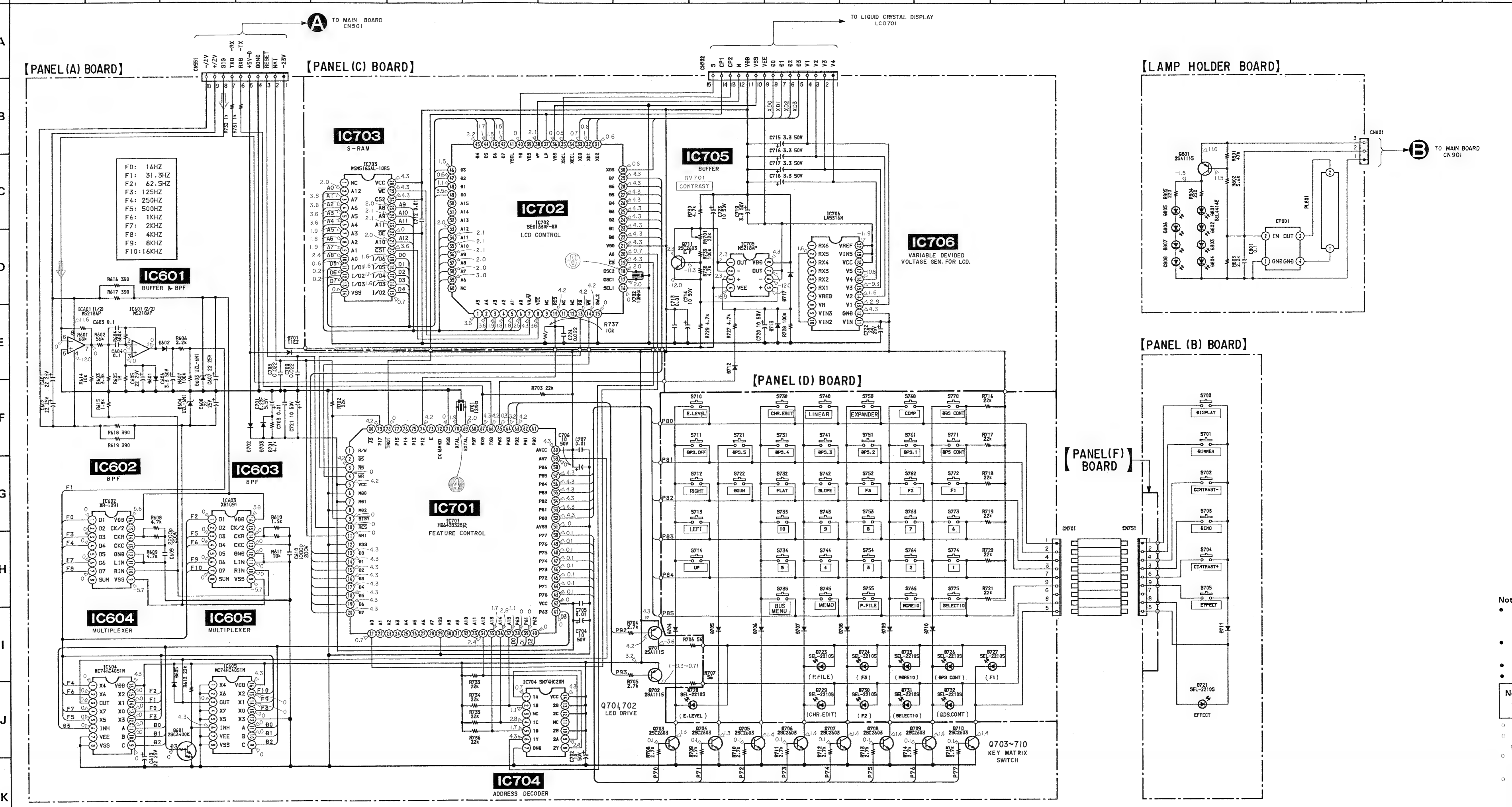
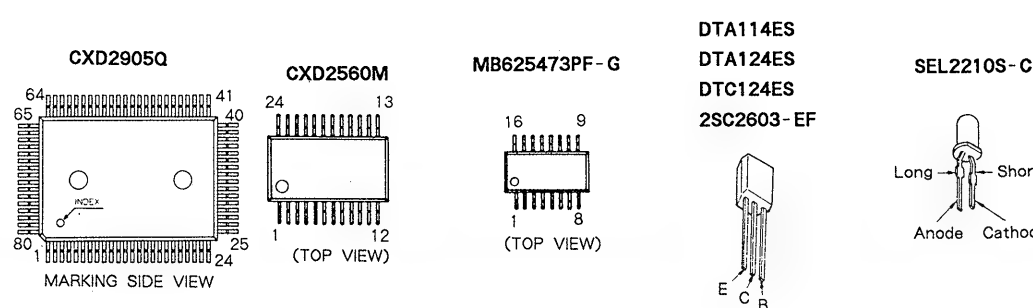
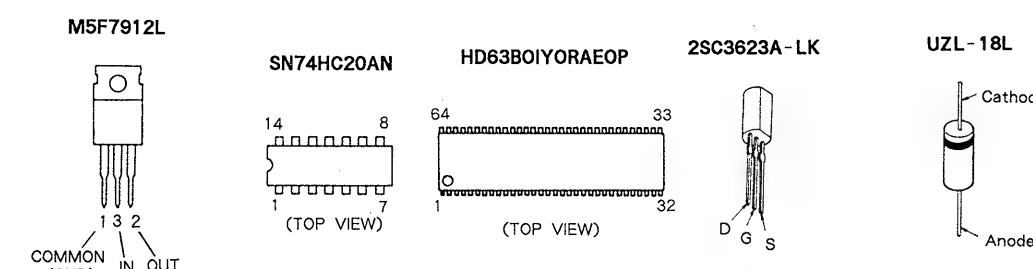
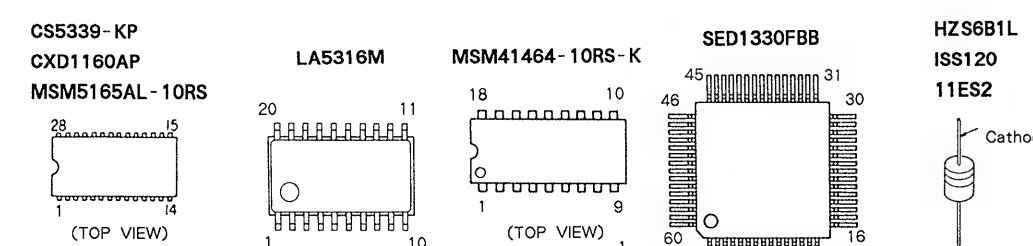
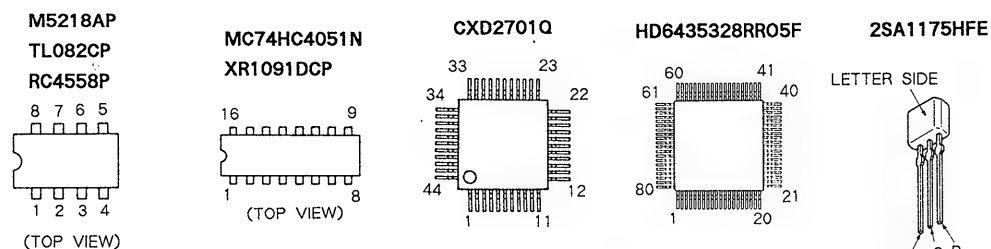
**CXD8245M**

**2SB1116-K**

**SEL4414E-C**



The diagram shows pinout information for several electronic components:

- MSF7812L, TA7805S, TA7905S:** A three-pin component with pins labeled IN, GND, and OUT.
- GP1F32R, GP1F32T:** A four-pin component with pins numbered 1 through 4. Pin 1 is Vout, Pin 2 is GND, Pin 3 is Vcc, and Pin 4 is GND.
- CXD2561M:** An 8-bit parallel input/output IC with 28 pins. Pins are numbered 1 through 14 on both sides. The top view shows pins 28, 15, 1, and 14.
- CXD8245M:** An 8-bit parallel input/output IC with 20 pins. Pins are numbered 1 through 10 on both sides. The top view shows pins 20, 11, 1, and 10.
- 2SB1116-K:** A bipolar junction transistor with three leads labeled E (Emitter), B (Base), and C (Collector).
- SEL4414E-C:** A light-emitting diode (LED) with two leads labeled Long Anode and Short Cathod.



G : Germany  
IT : Italian  
EA: Saudi Arabia

**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted,  $\text{pF}$ :  $\mu\text{M}\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
-  : nonflammable resistor.
-  : fusible resistor.

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

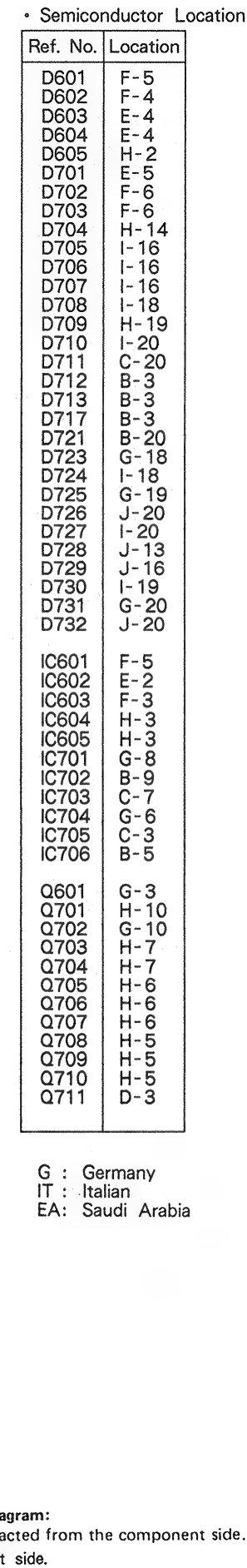
- o **channel** : B+ Line
- o **channel** : B- Line

no mark : No-signal, PHONO MODE

- o **Voltage and waveforms** are dc with respect to ground under no-signal conditions.
- o **Voltages** are taken with a VOM (input impedance 10M  $\Omega$ )
- o **Voltage variations** may be noted due to normal production tolerances.
- o **Circled numbers** refer to waveforms.
- o **Signal path.**

⇒ : CD





## SECTION 4 EXPLODED VIEWS



**NOTE :**

- - XX, - X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts  
Example :  
KNOB, BALANCE (WHITE)...(RED)  

Parts color  
↑

Cabinet's color  
↑

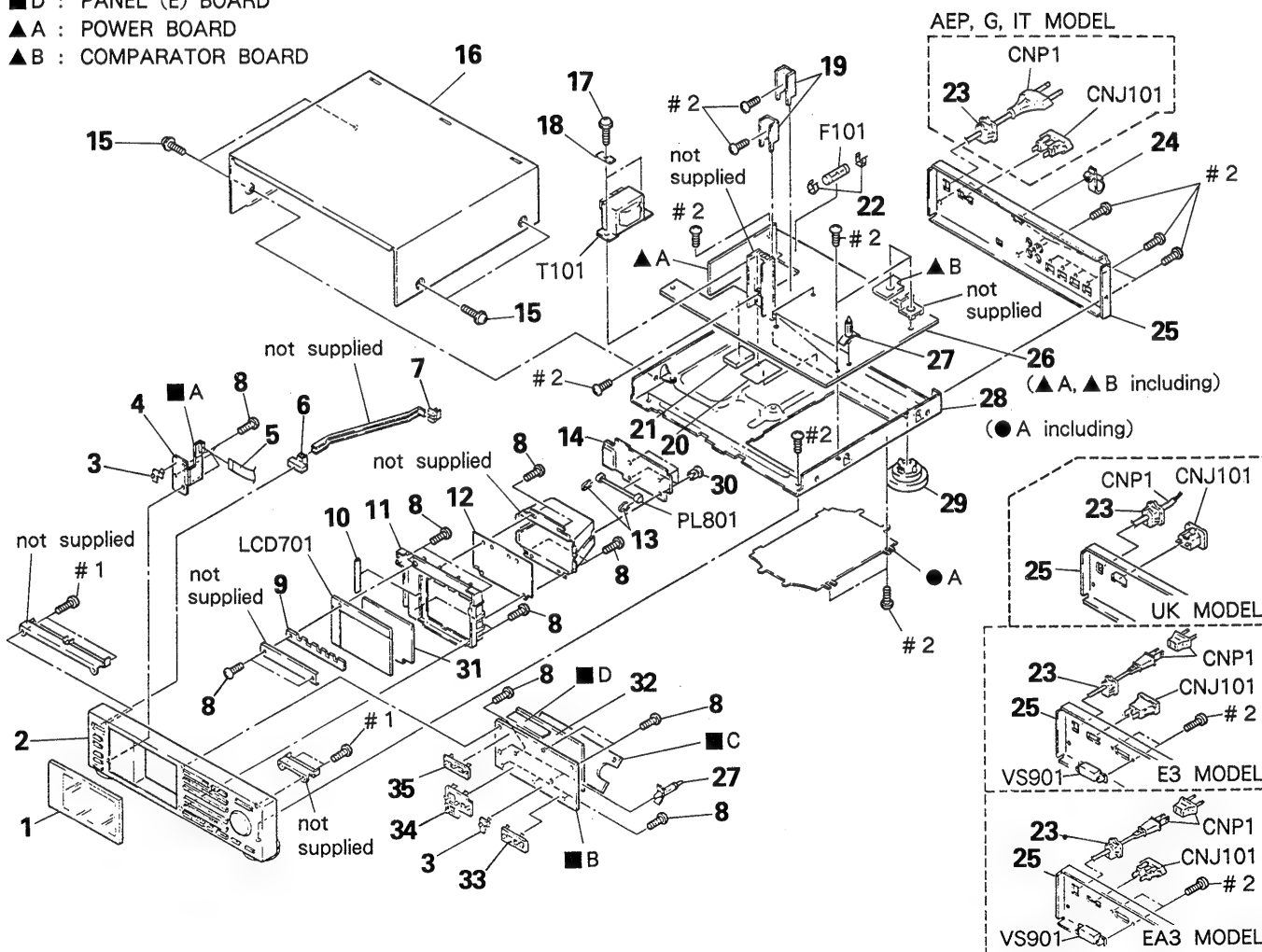
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

G : Germany  
IT : Italian  
EA : Saudi Arabia

## OVERALL SECTION

- A : PANEL (F) BOARD  
 ■ B : PANEL (D) BOARD  
 ■ C : PANEL (C) BOARD  
 ■ D : PANEL (E) BOARD  
 ▲ A : POWER BOARD  
 ▲ B : COMPARATOR BOARD



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	4-941-523-11	WINDOW		26	* A-4345-233-A	MAIN BOARD, COMPLETE (AEP, Italian)	
2	X-4941-442-1	PANEL ASSY, FRONT			* A-4345-234-A	MAIN BOARD, COMPLETE (Germany)	
3	* 4-941-534-01	HOLDER (1), LED			* A-4345-235-A	MAIN BOARD, COMPLETE (UK)	
4	* 1-637-045-11	PANEL B BOARD			* A-4345-236-A	MAIN BOARD, COMPLETE (E, Saudi Arabia)	
5	1-575-216-11	WIRE, FLAT TYPE (9 CORE)		27	* 4-924-098-91	HOLDER, PC BOARD	
6	4-921-919-01	BUTTON (P)		28	* 4-924-520-31	CHASSIS	
7	4-866-342-00	JOINT (B), KNOB		29	4-934-884-01	FOOT	
8	4-928-635-01	SCREW, +BV (2.6X8) TAPPING		30	4-812-134-00	RIVET NYLON, 3.5	
9	* 4-941-531-01	CUSHION		31	* 4-941-543-01	ILLUMINATOR (4)	
10	* 4-941-530-01	CUSHION		32	* A-4345-232-A	PANEL (A) BOARD, COMPLETE	
11	* 4-941-527-01	HOLDER (LCD)		33	* 4-941-536-01	HOLDER (3), LED	
12	* 4-942-169-01	PLATE, SHIELD		34	* 4-941-535-01	HOLDER (2-1), LED	
13	* 4-942-783-01	HOLDER		35	* 4-941-541-01	HOLDER (2-2), LED	
14	* 1-637-939-11	LAMP HOLDER BOARD		CNJ101	△1-526-751-00	OUTLET, AC (UK)	
15	3-704-366-01	SCREW (CASE) (M3X8)			△1-526-794-11	OUTLET, AC (AEP, Germany, Italian, Saudi Arabia)	
16	4-919-377-01	CASE			△1-526-882-00	OUTLET, AC (E)	
17	4-946-541-01	SCREW (4X8), +PWHTT		CNP1	△1-575-651-11	CORD, POWER (AEP, Germany, Italian)	
18	4-946-540-01	WASHER (SQUARE)			△1-575-654-11	CORD, POWER (Saudi Arabia)	
19	* 3-309-144-21	HEAT SINK			△1-575-656-11	CORD, POWER (E)	
20	* 4-945-761-01	SHEET (INSULATING)			△1-575-669-21	CORD, POWER (UK)	
21	9-911-841-XX	CUSHION		F101	△1-532-259-00	FUSE, TIME-LAG (AEP, UK, Germany, Italian)	(1.6A)
22	* 1-533-213-31	HOLDER, FUSE					
23	* 3-703-244-00	BUSHING (2104), CORD (AEP, UK, Germany, Italian, Saudi Arabia)		LCD701	1-809-202-11	DISPLAY PANEL, LIQUID CRYSTAL	
	* 3-703-571-11	BUSHING (S) (4516), CORD (E)		PL801	1-519-653-11	GAS DISCHARGE TUBE, FLUORESCENT	
24	* 2-379-614-01	HOOK		VS901	△1-570-046-21	SWITCH, VOLTAGE CHANGE (E, Saudi Arabia)	
25	* 4-943-823-11	PANEL, BACK (AEP, Germany, Italian)		T101	△1-450-596-11	TRANSFORMER, POWER (AEP, Germany, Italian)	
	* 4-943-823-21	PANEL, BACK (UK)			△1-450-597-11	TRANSFORMER, POWER (UK)	
	* 4-943-823-31	PANEL, BACK (E)			△1-450-598-11	TRANSFORMER, POWER (E, Saudi Arabia)	
	* 4-943-823-51	PANEL, BACK (Saudi Arabia)					

# MAIN

## SECTION 5 ELECTRICAL PARTS LIST

### NOTE :

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- - XX, - X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...,  $\mu$ PA...,  
uPB...,  $\mu$ PB..., uPC...,  $\mu$ PC...,  
uPD...,  $\mu$ PD...
- CAPACITORS:  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* A-4345-234-A	MAIN BOARD, COMPLETE (Germany)			C120	1-126-049-11	ELECT 22uF 20% 25V	
	*****			C121	1-126-049-11	ELECT 22uF 20% 25V	
* A-4345-233-A	MAIN BOARD, COMPLETE (AEP, Italian)			C122	1-106-343-00	MYLAR 1000PF 5% 200V	
	*****			C123	1-106-343-00	MYLAR 1000PF 5% 200V	
* A-4345-235-A	MAIN BOARD, COMPLETE (UK)			C126	1-164-070-11	CERAMIC 100PF 5% 50V	
	*****						
* A-4345-236-A	MAIN BOARD, COMPLETE (E, Saudi Arabia)			C128	1-136-153-00	FILM 0.01uF 5% 50V	
	*****			C129	1-164-014-11	CERAMIC 5PF 0.25PF 50V	
* 1-533-213-31	HOLDER, FUSE (AEP, UK, Germany, Italian)			C130	1-164-014-11	CERAMIC 5PF 0.25PF 50V	
* 3-309-144-21	HEAT SINK			C131	1-136-153-00	FILM 0.01uF 5% 50V	
7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			C132	1-136-153-00	FILM 0.01uF 5% 50V	
< CAPACITOR >				C133	1-124-587-11	ELECT 220uF 20% 6.3V	
C1	$\Delta$ 1-161-744-00	CERAMIC 0.01uF 400V		C140	1-136-165-00	FILM 0.1uF 5% 50V	
C2	$\Delta$ 1-161-744-00	CERAMIC 0.01uF 400V		C141	1-126-049-11	ELECT 22uF 20% 25V	
C3	$\Delta$ 1-161-741-00	CERAMIC 0.001uF 10% 400V		C142	1-164-159-11	CERAMIC 0.1uF 50V	
C4	$\Delta$ 1-161-741-00	CERAMIC 0.001uF 10% 400V		C143	1-136-165-00	FILM 0.1uF 5% 50V	
C5	$\Delta$ 1-161-741-00	CERAMIC 0.001uF 10% 400V		C201	1-126-049-11	ELECT 22uF 20% 25V	
C6	$\Delta$ 1-161-741-00	CERAMIC 0.001uF 10% 400V		C202	1-126-049-11	ELECT 22uF 20% 25V	
C7	$\Delta$ 1-161-741-00	CERAMIC 0.001uF 10% 400V		C203	1-136-153-00	FILM 0.01uF 5% 50V	
C101	1-126-049-11	ELECT 22uF 20% 25V		C204	1-126-059-11	ELECT 10uF 20% 50V	
C102	1-164-159-11	CERAMIC 0.1uF 50V		C205	1-164-159-11	CERAMIC 0.1uF 50V	
C103	1-126-049-11	ELECT 22uF 20% 25V		C206	1-126-049-11	ELECT 22uF 20% 25V	
C104	1-164-159-11	CERAMIC 0.1uF 50V		C207	1-164-159-11	CERAMIC 0.1uF 50V	
C105	1-126-049-11	ELECT 22uF 20% 25V		C208	1-126-049-11	ELECT 22uF 20% 25V	
C106	1-164-159-11	CERAMIC 0.1uF 50V		C209	1-164-159-11	CERAMIC 0.1uF 50V	
C107	1-126-049-11	ELECT 22uF 20% 25V		C210	1-126-049-11	ELECT 22uF 20% 25V	
C108	1-164-159-11	CERAMIC 0.1uF 50V		C211	1-164-159-11	CERAMIC 0.1uF 50V	
C109	1-136-153-00	FILM 0.01uF 5% 50V		C212	1-164-159-11	CERAMIC 0.1uF 50V	
C110	1-136-165-00	FILM 0.1uF 5% 50V		C213	1-126-049-11	ELECT 22uF 20% 25V	
C111	1-124-443-00	ELECT 100uF 20% 10V		C214	1-164-159-11	CERAMIC 0.1uF 50V	
C112	1-164-159-11	CERAMIC 0.1uF 50V		C251	1-126-049-11	ELECT 22uF 20% 25V	
C113	1-136-153-00	FILM 0.01uF 5% 50V		C252	1-126-049-11	ELECT 22uF 20% 25V	
C114	1-164-159-11	CERAMIC 0.1uF 50V		C253	1-136-153-00	FILM 0.01uF 5% 50V	
C116	1-161-494-00	CERAMIC 0.022uF 25V		C301	1-126-049-11	ELECT 22uF 20% 25V	
C117	1-124-443-00	ELECT 100uF 20% 10V		C302	1-136-153-00	FILM 0.01uF 5% 50V	
C118	1-164-079-11	CERAMIC 330PF 10% 50V		C303	1-102-960-00	CERAMIC 24PF 5% 50V	
C119	1-136-165-00	FILM 0.1uF 5% 50V					

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C304	1-102-960-00	CERAMIC 24PF 5% 50V		C460	1-164-077-11	CERAMIC 220PF 10% 50V	
C305	1-124-443-00	ELECT 100uF 20% 10V		C461	1-164-077-11	CERAMIC 220PF 10% 50V	
C306	1-164-159-11	CERAMIC 0.1uF 50V		C462	1-164-076-11	CERAMIC 180PF 10% 50V	
C307	1-124-443-00	ELECT 100uF 20% 10V		C463	1-164-076-11	CERAMIC 180PF 10% 50V	
C308	1-164-159-11	CERAMIC 0.1uF 50V		C464	1-126-049-11	ELECT 22uF 20% 25V	
C309	1-164-159-11	CERAMIC 0.1uF 50V		C465	1-130-472-00	MYLAR 0.0012uF 5% 50V	
C310	1-124-443-00	ELECT 100uF 20% 10V		C466	1-106-359-00	MYLAR 4700PF 5% 200V	
C311	1-164-159-11	CERAMIC 0.1uF 50V		C467	1-126-049-11	ELECT 22uF 20% 25V	
C312	1-124-587-11	ELECT 220uF 20% 6.3V		C468	1-164-066-11	CERAMIC 68PF 5% 50V	
C313	1-136-153-00	FILM 0.01uF 5% 50V		C469	1-124-463-00	ELECT 0.1uF 20% 50V	
C314	1-136-165-00	FILM 0.1uF 5% 50V		C470	1-124-463-00	ELECT 0.1uF 20% 50V	
C315	1-164-027-11	CERAMIC 22PF 5% 50V		C471	1-124-463-00	ELECT 0.1uF 20% 50V	
C316	1-161-494-00	CERAMIC 0.022uF 25V		C472	1-126-049-11	ELECT 22uF 20% 25V	
C317	1-164-159-11	CERAMIC 0.1uF 50V		C473	1-126-163-11	ELECT 4.7uF 20% 50V	
C318	1-164-159-11	CERAMIC 0.1uF 50V		C474	1-126-022-11	ELECT 47uF 20% 10V	
C401	1-126-022-11	ELECT 47uF 20% 10V		C475	1-126-301-11	ELECT 1uF 20% 50V	
C402	1-164-159-11	CERAMIC 0.1uF 50V		C501	1-126-059-11	ELECT 10uF 20% 50V	
C403	1-164-159-11	CERAMIC 0.1uF 50V		C502	1-126-157-11	ELECT 10uF 20% 16V	
C404	1-126-022-11	ELECT 47uF 20% 10V		C503	1-126-301-11	ELECT 1uF 20% 50V	
C405	1-136-165-00	FILM 0.1uF 5% 50V		C504	1-126-301-11	ELECT 1uF 20% 50V	
C406	1-126-022-11	ELECT 47uF 20% 10V		C505	1-126-177-11	ELECT 100uF 20% 10V	
C407	1-136-165-00	FILM 0.1uF 5% 50V		C506	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C408	1-126-022-11	ELECT 47uF 20% 10V		C507	1-161-494-00	CERAMIC 0.022uF 25V	
C409	1-164-159-11	CERAMIC 0.1uF 50V		C508	1-161-494-00	CERAMIC 0.022uF 25V	
C410	1-164-077-11	CERAMIC 220PF 10% 50V		C509	1-161-494-00	CERAMIC 0.022uF 25V	
C411	1-164-077-11	CERAMIC 220PF 10% 50V		C510	1-126-301-11	ELECT 1uF 20% 50V	
C412	1-164-076-11	CERAMIC 180PF 10% 50V		C511	1-164-159-11	CERAMIC 0.1uF 50V	
C413	1-164-076-11	CERAMIC 180PF 10% 50V		C512	1-164-159-11	CERAMIC 0.1uF 50V	
C414	1-126-049-11	ELECT 22uF 20% 25V		C513	1-164-159-11	CERAMIC 0.1uF 50V	
C415	1-130-472-00	MYLAR 0.0012uF 5% 50V		C514	1-164-159-11	CERAMIC 0.1uF 50V	
C416	1-106-359-00	MYLAR 4700PF 5% 200V		C901	1-161-377-00	CERAMIC 0.0047uF 20% 50V	
C417	1-126-049-11	ELECT 22uF 20% 25V		C902	1-161-377-00	CERAMIC 0.0047uF 20% 50V	
C418	1-164-066-11	CERAMIC 68PF 5% 50V		C903	1-126-029-11	ELECT 3300uF 20% 25V	
C419	1-124-463-00	ELECT 0.1uF 20% 50V		C904	1-126-029-11	ELECT 3300uF 20% 25V	
C420	1-124-463-00	ELECT 0.1uF 20% 50V		C905	1-161-377-00	CERAMIC 0.0047uF 20% 50V	
C421	1-124-463-00	ELECT 0.1uF 20% 50V		C906	1-126-029-11	ELECT 3300uF 20% 25V	
C422	1-126-049-11	ELECT 22uF 20% 25V		C907	1-124-478-11	ELECT 100uF 20% 25V	
C423	1-126-163-11	ELECT 4.7uF 20% 50V		C908	1-126-025-11	ELECT 330uF 20% 16V	
C424	1-126-022-11	ELECT 47uF 20% 10V		C909	1-126-025-11	ELECT 330uF 20% 16V	
C425	1-126-301-11	ELECT 1uF 20% 50V		C910	1-124-587-11	ELECT 220uF 20% 6.3V	
C426	1-164-159-11	CERAMIC 0.1uF 50V		C911	1-124-910-11	ELECT 47uF 20% 50V	
C427	1-164-159-11	CERAMIC 0.1uF 50V		C912	1-124-472-11	ELECT 470uF 20% 10V	
C428	1-164-159-11	CERAMIC 0.1uF 50V		C913	1-124-482-11	ELECT 33uF 20% 35V	
C429	1-164-159-11	CERAMIC 0.1uF 50V				(E, Saudi Arabia)	
C430	1-164-159-11	CERAMIC 0.1uF 50V		C913	1-124-242-00	ELECT 33uF 20% 25V	
						(AEP, UK, Germany, Italian)	



## MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C914	1-126-059-11	ELECT 10uF 20% 50V		D508	8-719-912-20	DIODE 1SS120	
C915	1-126-059-11	ELECT 10uF 20% 50V		D509	8-719-000-75	DIODE UZL-7L1-TP	
C918	1-126-059-11	ELECT 10uF 20% 50V		D901	8-719-200-82	DIODE 11ES2	
C919	1-126-059-11	ELECT 10uF 20% 50V		D902	8-719-200-82	DIODE 11ES2	
				D903	8-719-200-82	DIODE 11ES2	
C920	1-124-472-11	ELECT 470uF 20% 10V					
C921	1-124-472-11	ELECT 470uF 20% 10V		D904	8-719-200-82	DIODE 11ES2	
C922	1-126-022-11	ELECT 47uF 20% 16V		D905	8-719-200-82	DIODE 11ES2	
C923	1-124-910-11	ELECT 47uF 20% 50V		D906	8-719-200-82	DIODE 11ES2	
C924	1-161-377-00	CERAMIC 0.0047uF 20% 50V		D907	8-719-200-82	DIODE 11ES2	
				D908	8-719-200-82	DIODE 11ES2	
C925	1-126-059-11	ELECT 10uF 20% 50V					
		< CONNECTOR >		D909	8-719-200-82	DIODE 11ES2	
BP1	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P (AEP, UK, Germany, Italian)		D910	8-719-200-82	DIODE 11ES2	
	* 1-535-141-00	BASE POST 22MM (10MM PITCH) 4P (E, Saudi Arabia)		D911	8-719-200-82	DIODE 11ES2	
BP2	* 1-560-595-00	TERMINAL (WITH BASE) (E, Saudi Arabia)		D912	8-719-200-82	DIODE 11ES2	
				D913	8-719-200-82	DIODE 11ES2	
BP3	* 1-560-595-00	TERMINAL (WITH BASE) (E, Saudi Arabia)		D914	8-719-200-82	DIODE 11ES2	
CN1	* 1-564-321-00	PIN, CONNECTOR 2P		D915	8-719-912-20	DIODE 1SS120	
CN101	* 1-564-506-11	PLUG, CONNECTOR 3P		D916	8-719-002-06	DIODE UZL-18L	
CN102	* 1-564-505-11	PLUG, CONNECTOR 2P		D917	8-719-200-82	DIODE 11ES2	
CN103	* 1-564-508-11	PLUG, CONNECTOR 5P		D918	8-719-200-82	DIODE 11ES2	
				D919	8-719-200-82	DIODE 11ES2	
CN201	1-573-520-11	JACK, PIN 4P (LINE)				< FERRITE BEAD >	
CN501	1-569-406-11	SOCKET, CONNECTOR 10P		FB101	1-410-396-41	FERRITE BEAD INDUCTOR	
CN502	* 1-565-561-11	PIN, CONNECTOR 3P (AU BUS)		FB102	1-410-397-21	FERRITE BEAD INDUCTOR	
CN901	* 1-564-506-11	PLUG, CONNECTOR 3P		FB301	1-410-397-21	FERRITE BEAD INDUCTOR	
		< DIODE >		FB501	1-410-397-21	FERRITE BEAD INDUCTOR	
D102	8-713-300-88	DIODE 1T33C-01		FB502	1-410-397-21	FERRITE BEAD INDUCTOR	
D103	8-713-300-88	DIODE 1T33C-01				< IC >	
D104	8-713-300-88	DIODE 1T33C-01		IC101	8-749-921-11	IC GP1F32R (IN/BS)	
D105	8-713-300-88	DIODE 1T33C-01		IC102	8-749-921-11	IC GP1F32R (IN/DAT)	
D201	8-719-912-20	DIODE 1SS120		IC103	8-749-921-11	IC GP1F32R (IN/CD)	
				IC104	8-749-921-12	IC GP1F32T (OUT/DAT)	
D202	8-719-912-20	DIODE 1SS120		IC105	8-759-512-96	IC CXD2905Q	
D203	8-719-912-20	DIODE 1SS120					
D205	8-719-912-20	DIODE 1SS120		IC106	8-759-990-82	IC TL082CP	
D401	8-719-912-20	DIODE 1SS120		IC107	8-759-517-14	IC MB625473PF-G	
D501	8-719-912-20	DIODE 1SS120		IC108	8-752-306-51	IC CX23065A	
				IC201	8-759-634-51	IC M5218AP	
D502	8-719-933-36	DIODE HZS6B1L		IC202	8-759-504-36	IC CS5339-KP	
D503	8-719-912-20	DIODE 1SS120					
D505	8-719-912-20	DIODE 1SS120		IC301	8-759-511-68	IC CXD8245M	
D506	8-719-912-20	DIODE 1SS120		IC302	8-752-331-87	IC CXD1160AP	
D507	8-719-912-20	DIODE 1SS120		IC303	8-752-331-87	IC CXD1160AP	
				IC304	8-759-973-04	IC MSM41464-10RS-K	
				IC305	8-752-341-99	IC CXD2701Q	



## MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
IC306	8-752-342-65	IC	CXD2560M	Q410	8-729-900-36	TRANSISTOR	DTC124ES
IC401	8-752-343-01	IC	CXD2561M	Q411	8-729-141-30	TRANSISTOR	2SC3623A-LK
IC402	8-759-990-82	IC	TL082CP	Q412	8-729-900-36	TRANSISTOR	DTC124ES
IC403	8-759-634-51	IC	M5218AP	Q413	8-729-900-61	TRANSISTOR	DTA114ES
IC404	8-759-634-51	IC	M5218AP	Q451	8-729-141-30	TRANSISTOR	2SC3623A-LK
IC501	8-759-323-77	IC	HD63B01Y0RAE0P	Q452	8-729-141-30	TRANSISTOR	2SC3623A-LK
IC901	8-759-604-33	IC	M5F7812L	Q453	8-729-141-30	TRANSISTOR	2SC3623A-LK
IC902	8-759-604-51	IC	M5F7912L	Q454	8-729-141-30	TRANSISTOR	2SC3623A-LK
IC903	8-759-231-53	IC	TA7805S	Q459	8-729-119-76	TRANSISTOR	2SA1175-HFE
IC906	8-759-604-33	IC	M5F7812L	Q460	8-729-900-36	TRANSISTOR	DTC124ES
IC907	8-759-231-53	IC	TA7805S	Q461	8-729-141-30	TRANSISTOR	2SC3623A-LK
IC908	8-759-245-79	IC	TA7905S	Q501	8-729-119-76	TRANSISTOR	2SA1175-HFE
ICP901	△1-532-845-41	IC, LINK		Q502	8-729-620-05	TRANSISTOR	2SC2603-EF
ICP902	△1-532-840-41	IC, LINK		Q503	8-729-620-05	TRANSISTOR	2SC2603-EF
ICP903	△1-532-840-41	IC, LINK		Q504	8-729-620-05	TRANSISTOR	2SC2603-EF
ICP904	△1-532-833-41	IC, LINK		Q505	8-729-620-05	TRANSISTOR	2SC2603-EF
		< COIL >		Q901	8-729-118-01	TRANSISTOR	2SB1116-K
L101	1-410-517-11	INDUCTOR	47uH	Q902	8-729-900-36	TRANSISTOR	DTC124ES
L102	1-410-324-11	INDUCTOR	4.7uH	Q903	8-729-118-01	TRANSISTOR	2SB1116-K
L103	1-406-416-11	COIL (OSC)				< RESISTOR >	
L104	1-410-517-11	INDUCTOR	47uH	R101	1-249-425-11	CARBON	4.7K 5% 1/4W
L201	1-410-517-11	INDUCTOR	47uH	R102	1-249-425-11	CARBON	4.7K 5% 1/4W
L301	1-410-517-11	INDUCTOR	47uH	R103	1-249-425-11	CARBON	4.7K 5% 1/4W
L302	1-410-517-11	INDUCTOR	47uH	R104	1-249-433-11	CARBON	22K 5% 1/4W
L303	1-410-517-11	INDUCTOR	47uH	R105	1-249-405-11	CARBON	100 5% 1/4W
L304	1-410-517-11	INDUCTOR	47uH	R106	1-249-405-11	CARBON	100 5% 1/4W
L305	1-410-324-11	INDUCTOR	4.7uH	R108	1-249-413-11	CARBON	470 5% 1/4W
		< FILTER >		R111	1-249-413-11	CARBON	470 5% 1/4W
LF1	1-424-117-11	FILTER, LINE		R112	1-249-411-11	CARBON	330 5% 1/4W
LF101	1-424-543-21	FILTER, NOISE		R113	1-249-425-11	CARBON	4.7K 5% 1/4W
LF102	1-424-544-21	FILTER, NOISE		R114	1-249-421-11	CARBON	2.2K 5% 1/4W
LF501	1-424-543-21	FILTER, NOISE		R115	1-249-431-11	CARBON	15K 5% 1/4W
LF502	1-424-543-21	FILTER, NOISE		R116	1-249-429-11	CARBON	10K 5% 1/4W
		< TRANSISTOR >		R117	1-249-429-11	CARBON	10K 5% 1/4W
Q201	8-729-900-36	TRANSISTOR	DTC124ES	R118	1-249-437-11	CARBON	47K 5% 1/4W
Q401	8-729-141-30	TRANSISTOR	2SC3623A-LK	R119	1-249-437-11	CARBON	47K 5% 1/4W
Q402	8-729-141-30	TRANSISTOR	2SC3623A-LK	R120	1-247-903-00	CARBON	1M 5% 1/4W
Q403	8-729-141-30	TRANSISTOR	2SC3623A-LK	R121	1-249-437-11	CARBON	47K 5% 1/4W
Q404	8-729-141-30	TRANSISTOR	2SC3623A-LK	R122	1-249-433-11	CARBON	22K 5% 1/4W
Q405	8-729-900-63	TRANSISTOR	DTA124ES	R123	1-249-413-11	CARBON	470 5% 1/4W
Q407	8-729-900-63	TRANSISTOR	DTA124ES	R124	1-249-413-11	CARBON	470 5% 1/4W
Q408	8-729-900-63	TRANSISTOR	DTA124ES	R201	1-249-417-11	CARBON	1K 5% 1/4W
Q409	8-729-119-76	TRANSISTOR	2SA1175-HFE	R202	1-249-437-11	CARBON	47K 5% 1/4W
				R203	1-249-425-11	CARBON	4.7K 5% 1/4W
				R204	1-249-418-11	CARBON	1.2K 5% 1/4W

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

## MAIN

Ref. No.	Part No.	Description				Remarks	Ref. No.	Part No.	Description				Remarks
R205	1-249-405-11	CARBON	100	5%	1/4W		R426	1-249-414-11	CARBON	560	5%	1/4W	
R206	1-249-401-11	CARBON	47	5%	1/4W		R427	1-249-425-11	CARBON	4.7K	5%	1/4W	
R207	1-249-393-11	CARBON	10	5%	1/4W		R428	1-249-420-11	CARBON	1.8K	5%	1/4W	
R208	1-249-433-11	CARBON	22K	5%	1/4W		R429	1-249-441-11	CARBON	100K	5%	1/4W	
R209	1-249-413-11	CARBON	470	5%	1/4W		R430	1-249-441-11	CARBON	100K	5%	1/4W	
R251	1-249-417-11	CARBON	1K	5%	1/4W		R431	1-249-425-11	CARBON	4.7K	5%	1/4W	
R252	1-249-437-11	CARBON	47K	5%	1/4W		R432	1-249-441-11	CARBON	100K	5%	1/4W	
R253	1-249-425-11	CARBON	4.7K	5%	1/4W		R433	1-249-441-11	CARBON	100K	5%	1/4W	
R254	1-249-418-11	CARBON	1.2K	5%	1/4W		R434	1-249-441-11	CARBON	100K	5%	1/4W	
R255	1-249-405-11	CARBON	100	5%	1/4W		R435	1-249-441-11	CARBON	100K	5%	1/4W	
R256	1-249-401-11	CARBON	47	5%	1/4W		R436	1-249-393-11	CARBON	10	5%	1/4W	
R301	1-249-407-11	CARBON	150	5%	1/4W		R437	1-249-433-11	CARBON	22K	5%	1/4W	
R302	1-249-409-11	CARBON	220	5%	1/4W		R438	1-249-429-11	CARBON	10K	5%	1/4W	
R303	1-247-903-00	CARBON	1M	5%	1/4W		R440	1-249-425-11	CARBON	4.7K	5%	1/4W	
R304	1-249-413-11	CARBON	470	5%	1/4W		R441	1-249-429-11	CARBON	10K	5%	1/4W	
R305	1-249-413-11	CARBON	470	5%	1/4W		R445	1-249-425-11	CARBON	4.7K	5%	1/4W	
R307	1-249-413-11	CARBON	470	5%	1/4W		R451	1-249-428-11	CARBON	8.2K	5%	1/4W	
R308	1-249-413-11	CARBON	470	5%	1/4W		R452	1-249-428-11	CARBON	8.2K	5%	1/4W	
R309	1-249-413-11	CARBON	470	5%	1/4W		R453	1-249-428-11	CARBON	8.2K	5%	1/4W	
R310	1-249-413-11	CARBON	470	5%	1/4W		R454	1-249-428-11	CARBON	8.2K	5%	1/4W	
R311	1-249-413-11	CARBON	470	5%	1/4W		R455	1-249-423-11	CARBON	3.3K	5%	1/4W	
R312	1-249-413-11	CARBON	470	5%	1/4W		R456	1-249-423-11	CARBON	3.3K	5%	1/4W	
R313	1-249-413-11	CARBON	470	5%	1/4W		R457	1-249-430-11	CARBON	12K	5%	1/4W	
R314	1-249-413-11	CARBON	470	5%	1/4W		R458	1-249-430-11	CARBON	12K	5%	1/4W	
R315	1-249-413-11	CARBON	470	5%	1/4W		R459	1-249-419-11	CARBON	1.5K	5%	1/4W	
R316	1-249-413-11	CARBON	470	5%	1/4W		R460	1-249-419-11	CARBON	1.5K	5%	1/4W	
R401	1-249-428-11	CARBON	8.2K	5%	1/4W		R461	1-249-419-11	CARBON	1.5K	5%	1/4W	
R402	1-249-428-11	CARBON	8.2K	5%	1/4W		R468	1-249-441-11	CARBON	100K	5%	1/4W	
R403	1-249-428-11	CARBON	8.2K	5%	1/4W		R469	1-249-425-11	CARBON	4.7K	5%	1/4W	
R404	1-249-428-11	CARBON	8.2K	5%	1/4W		R470	1-249-426-11	CARBON	5.6K	5%	1/4W	
R405	1-249-423-11	CARBON	3.3K	5%	1/4W		R471	1-249-425-11	CARBON	4.7K	5%	1/4W	
R406	1-249-423-11	CARBON	3.3K	5%	1/4W		R472	1-249-423-11	CARBON	3.3K	5%	1/4W	
R407	1-249-430-11	CARBON	12K	5%	1/4W		R473	1-249-419-11	CARBON	1.5K	5%	1/4W	
R408	1-249-430-11	CARBON	12K	5%	1/4W		R474	1-249-425-11	CARBON	4.7K	5%	1/4W	
R409	1-249-419-11	CARBON	1.5K	5%	1/4W		R475	1-249-421-11	CARBON	2.2K	5%	1/4W	
R410	1-249-419-11	CARBON	1.5K	5%	1/4W		R476	1-249-414-11	CARBON	560	5%	1/4W	
R411	1-249-419-11	CARBON	1.5K	5%	1/4W		R477	1-249-425-11	CARBON	4.7K	5%	1/4W	
R418	1-249-441-11	CARBON	100K	5%	1/4W		R478	1-249-420-11	CARBON	1.8K	5%	1/4W	
R419	1-249-425-11	CARBON	4.7K	5%	1/4W		R479	1-249-441-11	CARBON	100K	5%	1/4W	
R420	1-249-426-11	CARBON	5.6K	5%	1/4W		R480	1-249-441-11	CARBON	100K	5%	1/4W	
R421	1-249-425-11	CARBON	4.7K	5%	1/4W		R481	1-249-425-11	CARBON	4.7K	5%	1/4W	
R422	1-249-423-11	CARBON	3.3K	5%	1/4W		R485	1-249-441-11	CARBON	100K	5%	1/4W	
R423	1-249-419-11	CARBON	1.5K	5%	1/4W		R487	1-249-433-11	CARBON	22K	5%	1/4W	
R424	1-249-425-11	CARBON	4.7K	5%	1/4W		R488	1-249-429-11	CARBON	10K	5%	1/4W	
R425	1-249-421-11	CARBON	2.2K	5%	1/4W		R490	1-249-425-11	CARBON	4.7K	5%	1/4W	

MAIN

PANEL A

Ref. No.	Part No.	Description	Remarks
R495	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R502	1-249-428-11	CARBON 8. 2K 5% 1/4W	
R503	1-249-420-11	CARBON 1. 8K 5% 1/4W	
R504	1-249-429-11	CARBON 10K 5% 1/4W	
R505	1-249-429-11	CARBON 10K 5% 1/4W	
R506	1-249-429-11	CARBON 10K 5% 1/4W	
R507	1-249-433-11	CARBON 22K 5% 1/4W	
R508	1-249-429-11	CARBON 10K 5% 1/4W	
R509	1-249-429-11	CARBON 10K 5% 1/4W	
R510	1-249-441-11	CARBON 100K 5% 1/4W	
R511	1-249-422-11	CARBON 2. 7K 5% 1/4W	
R512	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R513	1-249-429-11	CARBON 10K 5% 1/4W	
R514	1-249-437-11	CARBON 47K 5% 1/4W	
R515	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R516	1-249-429-11	CARBON 10K 5% 1/4W	
R517	1-249-417-11	CARBON 1K 5% 1/4W	
R518	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R519	1-249-429-11	CARBON 10K 5% 1/4W	
R520	1-249-393-11	CARBON 10 5% 1/4W	
R521	1-249-417-11	CARBON 1K 5% 1/4W	
R522	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R523	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R524	1-249-425-11	CARBON 4. 7K 5% 1/4W	
R904	1-249-428-11	CARBON 8. 2K 5% 1/4W	
R905	1-249-422-11	CARBON 2. 7K 5% 1/4W	
R906	1-249-437-11	CARBON 47K 5% 1/4W	
< SWITCH >			
S1	△1-572-716-11	SWITCH, PUSH (AC POWER)	
< VIBRATOR >			
X101	1-579-069-11	VIBRATOR, CRYSTAL 48.152MHz	
X301	1-577-614-11	VIBRATOR, CRYSTAL 16.345MHz	
X501	1-579-125-11	VIBRATOR, CERAMIC 8MHz	

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\* A-4345-232-A PANEL A BOARD, COMPLETE

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\* 1-637-045-11 PANEL B BOARD  
 \* 1-637-939-11 LAMP HOLDER BOARD  
 \* 4-941-534-01 HOLDER (1), LED  
 \* 4-941-535-01 HOLDER (2-1), LED  
 \* 4-941-536-01 HOLDER (3), LED

Ref. No.	Part No.	Description	Remarks
* 4-941-541-01		HOLDER (2-2), LED	
* 4-942-783-01		HOLDER	
< CAPACITOR >			
C601	1-126-049-11	ELECT 22uF 20% 25V	
C602	1-126-049-11	ELECT 22uF 20% 25V	
C603	1-136-165-00	FILM 0.1uF 5% 50V	
C604	1-136-165-00	FILM 0.1uF 5% 50V	
C605	1-126-049-11	ELECT 22uF 20% 25V	
C606	1-126-162-11	ELECT 3. 3uF 20% 50V	
C607	1-126-049-11	ELECT 22uF 20% 25V	
C608	1-126-049-11	ELECT 22uF 20% 25V	
C609	1-106-351-00	MYLAR 2200PF 5% 200V	
C610	1-106-343-00	MYLAR 1000PF 5% 200V	
C613	1-126-049-11	ELECT 22uF 20% 25V	
C701	1-125-486-11	DUBLE LAYERS 0. 22F 5. 5V	
C702	1-126-059-11	ELECT 10uF 20% 50V	
C703	1-161-379-00	CERAMIC 0. 01uF 20% 25V	
C704	1-126-059-11	ELECT 10uF 20% 50V	
C705	1-161-379-00	CERAMIC 0. 01uF 20% 25V	
C706	1-126-059-11	ELECT 10uF 20% 50V	
C707	1-161-379-00	CERAMIC 0. 01uF 20% 25V	
C708	1-161-494-00	CERAMIC 0. 022uF 25V	
C709	1-161-494-00	CERAMIC 0. 022uF 25V	
C712	1-161-379-00	CERAMIC 0. 01uF 20% 25V	
C713	1-161-379-00	CERAMIC 0. 01uF 20% 25V	
C714	1-126-059-11	ELECT 10uF 20% 50V	
C715	1-126-162-11	ELECT 3. 3uF 20% 50V	
C716	1-126-162-11	ELECT 3. 3uF 20% 50V	
C717	1-126-162-11	ELECT 3. 3uF 20% 50V	
C718	1-126-162-11	ELECT 3. 3uF 20% 50V	
C719	1-126-162-11	ELECT 3. 3uF 20% 50V	
C720	1-126-059-11	ELECT 10uF 20% 50V	
C721	1-126-059-11	ELECT 10uF 20% 50V	
C722	1-126-049-11	ELECT 22uF 20% 25V	
C723	1-126-059-11	ELECT 10uF 20% 50V	
C724	1-161-494-00	CERAMIC 0. 022uF 25V	
C801	1-164-159-11	CERAMIC 0. 1uF 50V	

&lt; CONNECTOR &gt;

CN551 1-569-400-11 PLUG, CONNECTOR 10P  
 CN701 \* 1-568-828-11 SOCKET, CONNECTOR 9P  
 CN702 \* 1-580-409-11 SOCKET, CONNECTOR 15P  
 CN751 \* 1-568-828-11 SOCKET, CONNECTOR 9P  
 CN801 \* 1-564-506-11 PLUG, CONNECTOR 3P

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## PANEL A

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< TRANSFORMER >				< IC >			
CP801	1-239-021-11	ENCAPSULATED COMPONENT		IC601	8-759-945-58	IC RC4558P	
< DIODE >				IC602	8-759-991-11	IC XR1091DCP	
D601	8-719-912-20	DIODE 1SS120		IC603	8-759-991-11	IC XR1091DCP	
D602	8-719-912-20	DIODE 1SS120		IC604	8-759-007-19	IC MC74HC4051N	
D603	8-719-933-36	DIODE HZS6B1L		IC605	8-759-007-19	IC MC74HC4051N	
D604	8-719-933-36	DIODE HZS6B1L		IC701	8-759-323-78	IC HD6435328RR05F	
D605	8-719-912-20	DIODE 1SS120		IC702	8-759-502-88	IC SED1330FBB	
D701	8-719-200-82	DIODE 11ES2		IC703	8-759-502-08	IC MSM5165AL-10RS	
D702	8-719-912-20	DIODE 1SS120		IC704	8-759-916-21	IC SN74HC20AN	
D703	8-719-912-20	DIODE 1SS120		IC705	8-759-945-58	IC RC4558P	
D704	8-719-912-20	DIODE 1SS120		IC706	8-759-823-29	IC LA5316M	
D705	8-719-912-20	DIODE 1SS120		< FLUORESCENT TUBE >			
D706	8-719-912-20	DIODE 1SS120		PL801	1-519-653-11	GAS DISCHARGE TUBE, FLUORESCENT	
D707	8-719-912-20	DIODE 1SS120		< TRANSISTOR >			
D708	8-719-912-20	DIODE 1SS120		Q601	8-729-900-36	TRANSISTOR DTC124ES	
D709	8-719-912-20	DIODE 1SS120		Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D710	8-719-912-20	DIODE 1SS120		Q702	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D711	8-719-912-20	DIODE 1SS120		Q703	8-729-620-05	TRANSISTOR 2SC2603-EF	
D712	8-719-912-20	DIODE 1SS120		Q704	8-729-620-05	TRANSISTOR 2SC2603-EF	
D713	8-719-912-20	DIODE 1SS120		Q705	8-729-620-05	TRANSISTOR 2SC2603-EF	
D717	8-719-912-20	DIODE 1SS120		Q706	8-729-620-05	TRANSISTOR 2SC2603-EF	
D721	8-719-301-38	DIODE SEL2210S-C (EFFECT)		Q707	8-729-620-05	TRANSISTOR 2SC2603-EF	
D723	8-719-301-38	DIODE SEL2210S-C (PERSONAL FILE)		Q708	8-729-620-05	TRANSISTOR 2SC2603-EF	
D724	8-719-301-38	DIODE SEL2210S-C (F3)		Q709	8-729-620-05	TRANSISTOR 2SC2603-EF	
D725	8-719-301-38	DIODE SEL2210S-C (MORE 10)		Q710	8-729-620-05	TRANSISTOR 2SC2603-EF	
D726	8-719-301-38	DIODE SEL2210S-C (CONTROL)		Q711	8-729-620-05	TRANSISTOR 2SC2603-EF	
D727	8-719-301-38	DIODE SEL2210S-C (F1)		Q801	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D728	8-719-301-38	DIODE SEL2210S-C (EFFECT LEVEL)		< RESISTOR >			
D729	8-719-301-38	DIODE SEL2210S-C (CHARACTER EDIT)		R601	1-249-439-11	CARBON 68K 5% 1/4W	
D730	8-719-301-38	DIODE SEL2210S-C (F2)		R602	1-249-438-11	CARBON 56K 5% 1/4W	
D731	8-719-301-38	DIODE SEL2210S-C (SELECT 10)		R603	1-249-423-11	CARBON 3.3K 5% 1/4W	
D732	8-719-301-38	DIODE SEL2210S-C (CONTROL)		R604	1-247-899-11	CARBON 680K 5% 1/4W	
D801	8-719-304-37	DIODE SEL4414E-C		R605	1-247-903-00	CARBON 1M 5% 1/4W	
D802	8-719-304-37	DIODE SEL4414E-C		R606	1-249-421-11	CARBON 2.2K 5% 1/4W	
D803	8-719-304-37	DIODE SEL4414E-C		R607	1-249-441-11	CARBON 100K 5% 1/4W	
D804	8-719-304-37	DIODE SEL4414E-C		R608	1-249-425-11	CARBON 4.7K 5% 1/4W	
D805	8-719-304-37	DIODE SEL4414E-C		R609	1-249-425-11	CARBON 4.7K 5% 1/4W	
D806	8-719-304-37	DIODE SEL4414E-C		R610	1-249-419-11	CARBON 1.5K 5% 1/4W	
D807	8-719-304-37	DIODE SEL4414E-C					
D808	8-719-304-37	DIODE SEL4414E-C					

PANEL A
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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R611	1-249-429-11	CARBON 10K 5% 1/4W		R804	1-249-409-11	CARBON 220 5% 1/4W	
R612	1-249-433-11	CARBON 22K 5% 1/4W		R805	1-249-409-11	CARBON 220 5% 1/4W	
R614	1-249-429-11	CARBON 10K 5% 1/4W				< VARIABLE RESISTOR >	
R615	1-249-420-11	CARBON 1.8K 5% 1/4W					
R616	1-249-412-11	CARBON 390 5% 1/4W		RV701	1-238-601-11	RES, ADJ, CARBON 22K	
						< SWITCH >	
R617	1-249-412-11	CARBON 390 5% 1/4W					
R618	1-249-412-11	CARBON 390 5% 1/4W		S700	1-554-303-21	SWITCH, TACTILE (DISPLAY)	
R619	1-249-412-11	CARBON 390 5% 1/4W		S701	1-554-303-21	SWITCH, TACTILE (DIMMER)	
R701	1-249-425-11	CARBON 4.7K 5% 1/4W		S702	1-554-303-21	SWITCH, TACTILE (-)	
R702	1-249-433-11	CARBON 22K 5% 1/4W		S703	1-554-303-21	SWITCH, TACTILE (DEMO)	
				S704	1-554-303-21	SWITCH, TACTILE (+)	
R703	1-249-433-11	CARBON 22K 5% 1/4W					
R704	1-249-422-11	CARBON 2.7K 5% 1/4W		S705	1-554-303-21	SWITCH, TACTILE (EFFECT)	
R705	1-249-422-11	CARBON 2.7K 5% 1/4W		S710	1-554-303-21	SWITCH, TACTILE (EFFECT MODE)	
R706	1-249-402-11	CARBON 56 5% 1/4W		S711	1-554-303-21	SWITCH, TACTILE (OFF)	
R707	1-249-402-11	CARBON 56 5% 1/4W		S712	1-554-303-21	SWITCH, TACTILE ( < )	
				S713	1-554-303-21	SWITCH, TACTILE ( > )	
R708	1-249-422-11	CARBON 2.7K 5% 1/4W					
R709	1-249-422-11	CARBON 2.7K 5% 1/4W		S714	1-554-303-21	SWITCH, TACTILE ( △ )	
R710	1-249-422-11	CARBON 2.7K 5% 1/4W		S721	1-554-303-21	SWITCH, TACTILE (5)	
R711	1-249-422-11	CARBON 2.7K 5% 1/4W		S722	1-554-303-21	SWITCH, TACTILE ( ▽ )	
R712	1-249-422-11	CARBON 2.7K 5% 1/4W		S730	1-554-303-21	SWITCH, TACTILE (CHARACTER EDIT)	
				S731	1-554-303-21	SWITCH, TACTILE (4)	
R713	1-249-422-11	CARBON 2.7K 5% 1/4W					
R714	1-249-422-11	CARBON 2.7K 5% 1/4W		S732	1-554-303-21	SWITCH, TACTILE (FLAT)	
R715	1-249-422-11	CARBON 2.7K 5% 1/4W		S733	1-554-303-21	SWITCH, TACTILE (10)	
R716	1-249-433-11	CARBON 22K 5% 1/4W		S734	1-554-303-21	SWITCH, TACTILE (5)	
R717	1-249-433-11	CARBON 22K 5% 1/4W		S735	1-554-303-21	SWITCH, TACTILE (SUB MENU)	
				S740	1-554-303-21	SWITCH, TACTILE (LINEAR)	
R718	1-249-433-11	CARBON 22K 5% 1/4W					
R719	1-249-433-11	CARBON 22K 5% 1/4W		S741	1-554-303-21	SWITCH, TACTILE (3)	
R720	1-249-433-11	CARBON 22K 5% 1/4W		S742	1-554-303-21	SWITCH, TACTILE (SLOPE)	
R721	1-249-433-11	CARBON 22K 5% 1/4W		S743	1-554-303-21	SWITCH, TACTILE (9)	
R727	1-249-425-11	CARBON 4.7K 5% 1/4W		S744	1-554-303-21	SWITCH, TACTILE (4)	
				S745	1-554-303-21	SWITCH, TACTILE (MEMORY)	
R728	1-249-441-11	CARBON 100K 5% 1/4W					
R729	1-249-425-11	CARBON 4.7K 5% 1/4W		S750	1-554-303-21	SWITCH, TACTILE (EXPAND)	
R730	1-249-425-11	CARBON 4.7K 5% 1/4W		S751	1-554-303-21	SWITCH, TACTILE (2)	
R731	1-249-417-11	CARBON 1K 5% 1/4W		S752	1-554-303-21	SWITCH, TACTILE (F3)	
R732	1-249-417-11	CARBON 1K 5% 1/4W		S753	1-554-303-21	SWITCH, TACTILE (8)	
				S754	1-554-303-21	SWITCH, TACTILE (3)	
R733	1-249-433-11	CARBON 22K 5% 1/4W					
R734	1-249-433-11	CARBON 22K 5% 1/4W		S755	1-554-303-21	SWITCH, TACTILE (PERSONAL FILE)	
R735	1-249-433-11	CARBON 22K 5% 1/4W		S760	1-554-303-21	SWITCH, TACTILE (COMPRESS)	
R736	1-249-433-11	CARBON 22K 5% 1/4W		S761	1-554-303-21	SWITCH, TACTILE (1)	
R737	1-249-429-11	CARBON 10K 5% 1/4W		S762	1-554-303-21	SWITCH, TACTILE (F2)	
				S763	1-554-303-21	SWITCH, TACTILE (7)	
R738	1-249-425-11	CARBON 4.7K 5% 1/4W					
R739	1-249-441-11	CARBON 100K 5% 1/4W					
R801	1-249-437-11	CARBON 47K 5% 1/4W					
R802	1-249-426-11	CARBON 5.6K 5% 1/4W					
R803	1-249-421-11	CARBON 2.2K 5% 1/4W					

**PANEL A**

Ref. No.	Part No.	Description	Remarks
S764	1-554-303-21	SWITCH, TACTILE (2)	
S765	1-554-303-21	SWITCH, TACTILE (MORE 10)	
S770	1-554-303-21	SWITCH, TACTILE (CONTROL)	
S771	1-554-303-21	SWITCH, TACTILE (CONTROL)	
S772	1-554-303-21	SWITCH, TACTILE (F1)	
S773	1-554-303-21	SWITCH, TACTILE (6)	
S774	1-554-303-21	SWITCH, TACTILE (1)	
S775	1-554-303-21	SWITCH, TACTILE (SELECT 10)	
		( VIBRATOR )	
X701	1-577-364-11	VIBRATOR, CERAMIC 12MHz	
X702	1-579-175-11	VIBRATOR, CERAMIC 10MHz	
*****			
		MISCELLANEOUS	
		*****	
5	1-575-216-11	WIRE, FLAT TYPE (9 CORE)	
CNJ101	△1-526-751-00	OUTLET, AC (UK)	
	△1-526-794-11	OUTLET, AC (AEP, Germany, Italian, Saudi Arabia)	
	1-526-882-00	OUTLET, AC (E)	
CNP1	△1-575-651-11	CORD, POWER (AEP, Germany, Italian)	
	△1-575-654-11	CORD, POWER (Saudi Arabia)	
	△1-575-656-11	CORD, POWER (E)	
	△1-575-669-21	CORD, POWER (UK)	
F101	△1-532-259-00	FUSE, TIME-LAG (AEP, UK, Germany, Italian) (1.5A)	
LCD901	1-809-202-11	DISPLAY PANEL, LIQUID CRYSTAL	
SV701	△1-570-046-21	SWITCH, VOLTAGE CHANGE (E, Saudi Arabia)	
T101	△1-450-596-11	TRANSFORMER, POWER (AEP, Germany, Italian)	
	△1-450-597-11	TRANSFORMER, POWER (UK)	
	△1-450-598-11	TRANSFORMER, POWER (E, Saudi Arabia)	
*****			



Ref. No.	Part No.	Description	Remarks
		ACCESSORY & PACKING MATERIAL	
		*****	
	1-558-271-11	CORD, CONNECTION (AEP, Germany, Italian)	
	1-559-533-11	CORD, CONNECTION (AEP, Germany, Italian)	
	1-574-264-11	CORD, LIGHT PLUG (AEP, Germany, Italian)	
	3-701-630-00	BAG, POLYETHYLENE (Germany, Italian)	
	3-753-428-11	MANUAL, INSTRUCTION (English, French, Spanish, Portuguese) (AEP)	
	3-753-428-41	MANUAL, INSTRUCTION (Germany, Dutch, Swedish, Italian) (AEP, Germany, Italian)	
*	4-941-928-01	CUSHION (FRONT) (UK, E, Saudi Arabia)	
*	4-941-929-01	CUSHION (REAR) (UK, E, Saudi Arabia)	
*	4-944-163-01	CUSHION (AEP, Germany, Italian)	
*	4-946-091-01	INDIVIDUAL CARTON (AEP, Germany, Italian)	

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**HARDWARE LIST**

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# 1	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S
# 2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

# CDP-M72

## SERVICE MANUAL

*AEP Model  
UK Model  
E Model*



Model Name Using Similar Mechanism	CDP-M71
CD Mechanism Type	CDM14-5BD1
Base Unit Name	BU-5BD1

### TABLE OF CONTENTS

Section	Title	Page
1. GENERAL		
	Location of Controls .....	4
2. ELECTRICAL BLOCK CHECKING .....		5
3. DIAGRAMS		
3-1.	Block Diagram .....	7
3-2.	Semiconductor Lead Layouts .....	11
3-3.	Printed Wiring Boards .....	12
3-4.	Schematic Diagram .....	15
3-5.	IC Block Diagrams .....	19
3-6.	Pin Functions of IC401 .....	21
4. EXPLODED VIEWS		
4-1.	Chassis Section .....	22
4-2.	CD Mechanism Section .....	24
4-3.	Optical Pick-Up Block .....	25
5. ELECTRICAL PARTS LIST .....		26

### SPECIFICATIONS

#### Outputs

DIGITAL OUT (OPTICAL)  
(optical output connector)  
Wave length 680 nm  
Output level - 18 dBm

#### General

Power requirements  
Model for Continental Europe  
220 V - 230 V AC, 50/60 Hz  
Model for the United Kingdom  
240 V AC 50 Hz  
Model for other countries  
110 - 120 V/220 - 240 V  
50/60 Hz

Power consumption 12 W

Dimensions  
(approx., including projections)  
355 × 110 × 310 mm  
(w/h/d) (14 × 4 1/4 × 12 1/4 inches)

Weight (approx.) 3.5 kg (7 lbs 15 oz)

#### Supplied accessories

AC plug adaptor  
(for some areas)

Design and specifications subject to change without notice.

CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

This Compact Disc player is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.



COMPACT DISC PLAYER  
**SONY**®

## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1. Laser Diode Properties
  - Material: GaAlAs
  - Wavelength: 780nm
  - Emission Duration: continuous
  - Laser Output: max.44.6 $\mu$ W\*
    - \* This output is the value measured at a distance of about 200mm from the objective lens surface on the Optical Pick-up Block.
2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

### NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

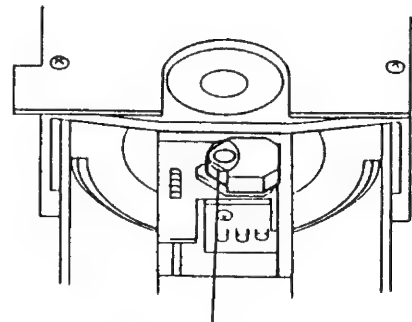
The flexible board is easily damaged and should be handled with care.

### NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

### LASER DIODE AND FOCUS SERCH OPERATION CHECK

1. Make POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objective lens.



- ① Confirm that laser beam is spread.
- ② Up and down motion of the objective lens. (3 times)

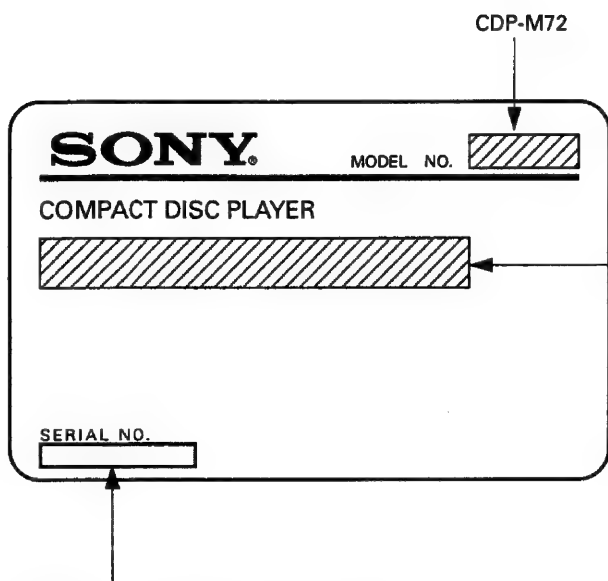
### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\Delta$  OR DOTTED LINE WITH MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



## MODEL IDENTIFICATION

### – SPECIFICATION LABEL –



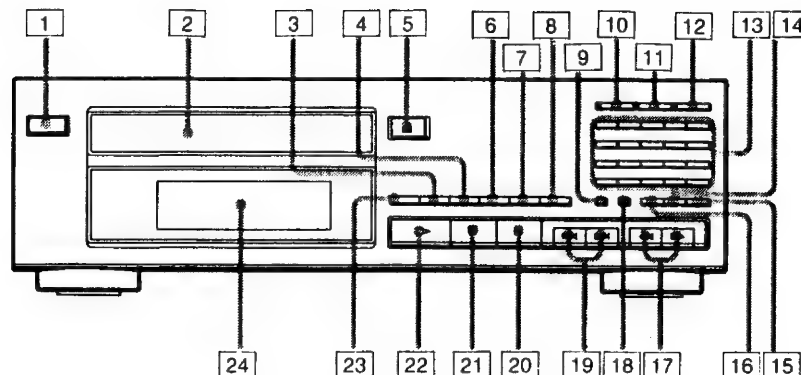
AEP MODEL : AC220, 50/60Hz, 12W  
 UK MODEL : AC240V, 50/60Hz, 12W  
 E, Saudi Arabia MODEL : AC110-120, 220-240V, 50/60Hz, 12W

MADE IN JAPAN : Japan Made Model  
 MADE IN FRANCE : France Made Model

## SECTION 1 GENERAL

### LOCATION OF CONTROLS

This section is extracted from instruction manual.



- |                                  |                                 |
|----------------------------------|---------------------------------|
| 1 POWER switch                   | 13 Numeric buttons              |
| 2 Disc tray                      | 14 CLEAR (program clear) button |
| 3 REPEAT button                  | 15 >20 (over 20) button         |
| 4 A. SPACE (auto space) button   | 16 CHECK (program check) button |
| 5 ▲ OPEN/CLOSE button            | 17 ◀▶▶▶ (manual search) buttons |
| 6 MUSIC SCAN button              | 18 TIME SET button              |
| 7 PEAK SEARCH button             | 19 ◀▶▶▶ (AMS*) buttons          |
| 8 FADER button                   | 20 ■ (stop) button              |
| 9 EDIT/TIME FADE button          | 21    (pause) button            |
| 10 CONTINUE button and indicator | 22 ▶ (play) button              |
| 11 SHUFFLE button and indicator  | 23 TIME button                  |
| 12 PROGRAM button and indicator  | 24 Display window               |

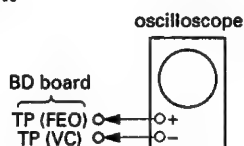
\* AMS is an abbreviation of Automatic Music Sensor.

## SECTION 2

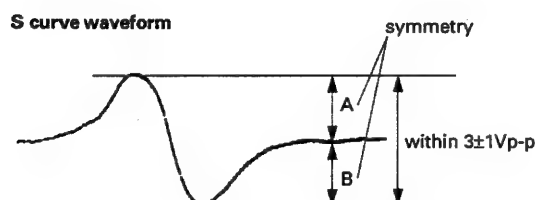
### ELECTRICAL BLOCK CHECKING

**Note :**

1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than  $10M\Omega$  impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

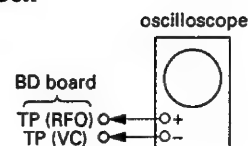
**S Curve Check****Procedure :**

1. Connect oscilloscope to test point TP (FEO) on BD board.
2. Connect between test point TP (FES) and TP (VC) by lead wire.
3. Turned Power switch on and actuate the focus serch. (actuate the focus serch when disc table is moving in and out.)
4. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within  $3\pm 1V_{p-p}$ .



5. After check, remove the lead wire connected in step 2.

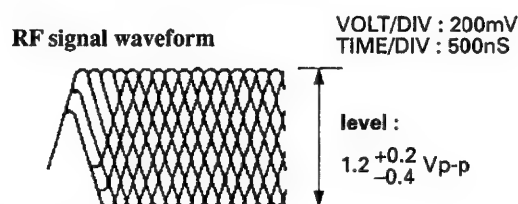
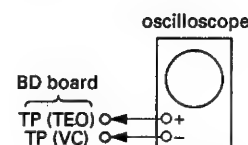
- Note :**
- Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
  - Take sweep time as long as possible and light up the brightness to obtain best waveform.

**RF Level Check****Procedure :**

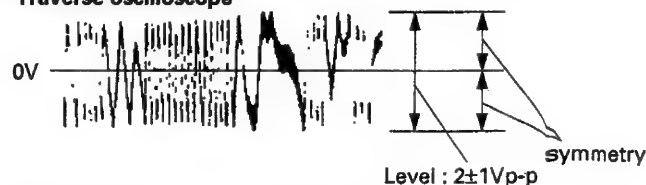
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note :**

Clear RF signal waveform means that the shape “ $\diamond$ ” can be clearly distinguished at the center of the waveform.

**E-F Balance Check****Procedure :**

1. Connect test point TP (ADJ) to ground and TP (TES) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TEO) on BD board.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

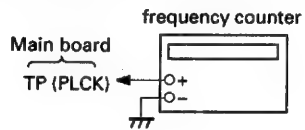
**Traverse oscilloscope**

6. Remove the lead wire connected in step 1.

### RF PLL Free-run Frequency Check

### Procedure :

1. Connect frequency counter to test point (PLCK) with lead wire.



2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

### Focus/Tracking Gain

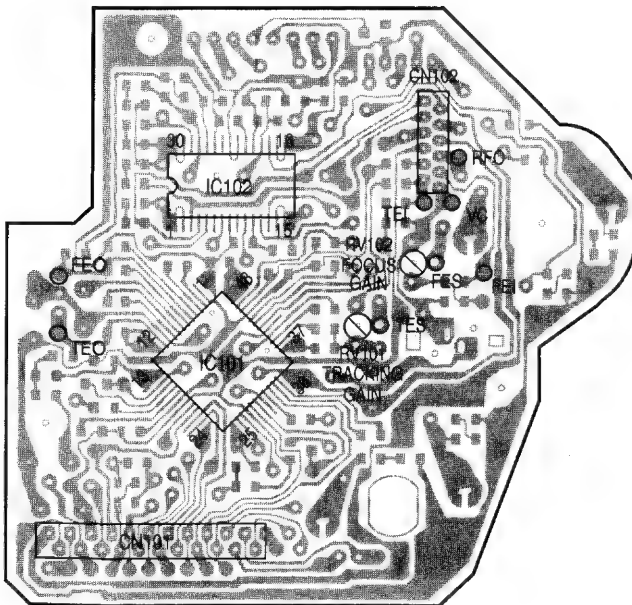
**This gain has a margin, so even if it is slightly off. There is no problem.**

**Therefore, do not perform, this adjustment.**

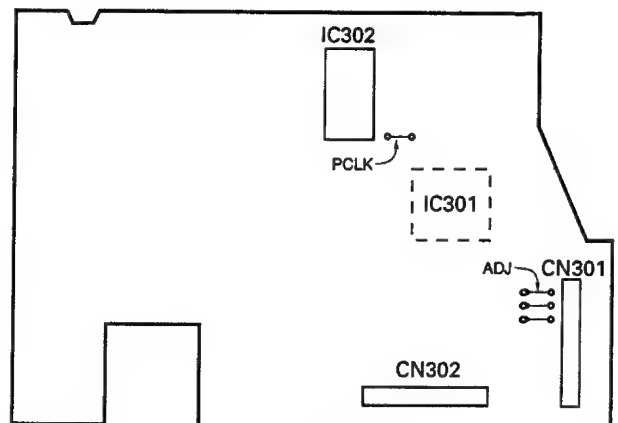
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

## ADJUSTMENT LOCATIONS

**[ BD BOARD ] – Conductor Side –**

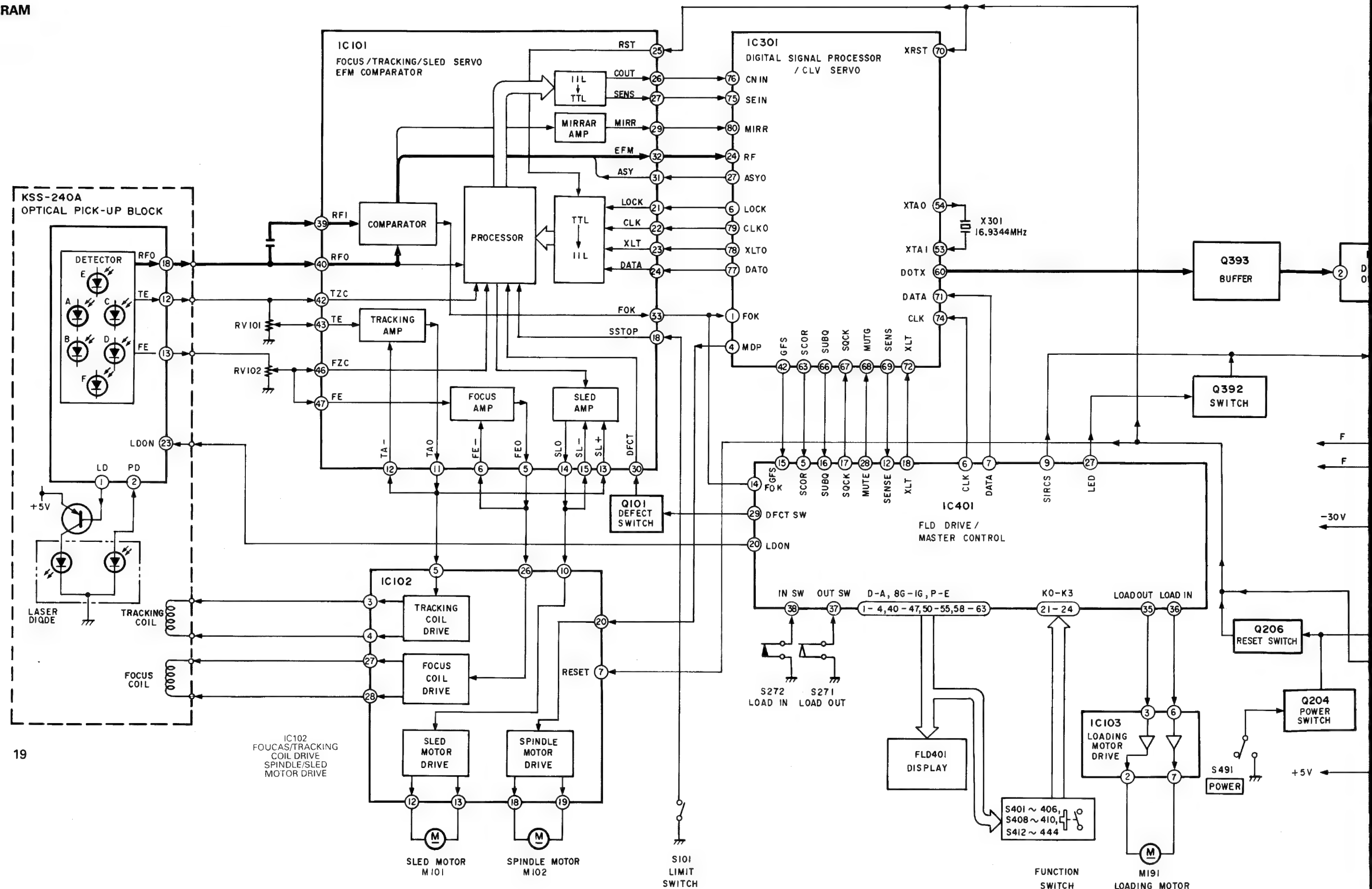


**[ MAIN BOARD ] – Component Side –**



# SECTION 3 DIAGRAMS

## 3-1. BLOCK DIAGRAM





A diagram of a multi-strapped harness. It features a rectangular upper section with four vertical straps extending downwards. Label 'E' points to the leftmost strap, 'C' points to the second strap from the left, and 'B' points to the rightmost strap.

Ref. No	Location
D101	A-12
D201	E-7
D202	I-7
D203	E-6
D204	E-6
D205	E-6
D206	E-6
D207	G-7
D391	D-1
D401	H-15
D402	H-15
D403	G-14
D404	H-14
D405	H-18
D406	I-18
D407	H-18
D408	H-18
D409	I-18
D410	I-18
D411	H-15
D417	I-18
IC101	C-11
IC102	B-11
IC103	A-11
IC201	F-7
IC202	G-6
IC301	H-4
IC391	B-2
IC401	I-17
Q101	C-12
Q201	F-7
Q203	F-6
Q204	H-6
Q205	H-6
Q206	H-6
Q207	G-7
Q208	F-7
Q392	B-2
Q393	B-2

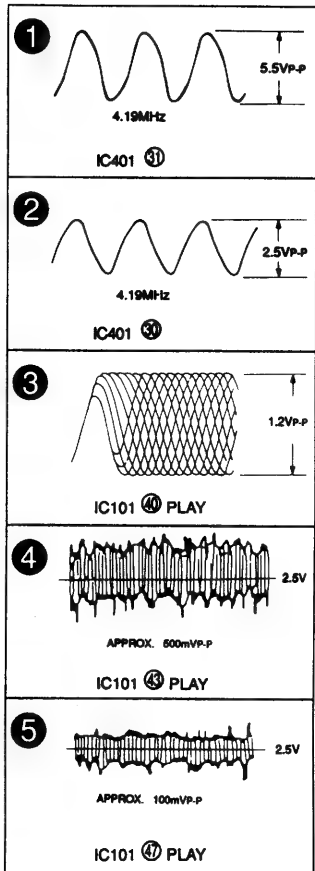
### 3-3. PRINTED WIRING BOARDS







# ● WAVEFORMS



- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in ohms, 1/4W or less unless otherwise noted.
  - $\Delta$  : internal component.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

- — : B+ Line.
- - - - : B- Line.
- $\square$  : adjustment for repair.
- Voltage are DC with respect to ground under no -signal (STOP) conditions.
- no mark : Stop mode
- Voltages are taken with a VOM (input impedance 10M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path
- $\nabla$  : CD
- EA : Saudi Arabia Model

**IC401**  
FLD DRIVE  
MASTER CONTROL

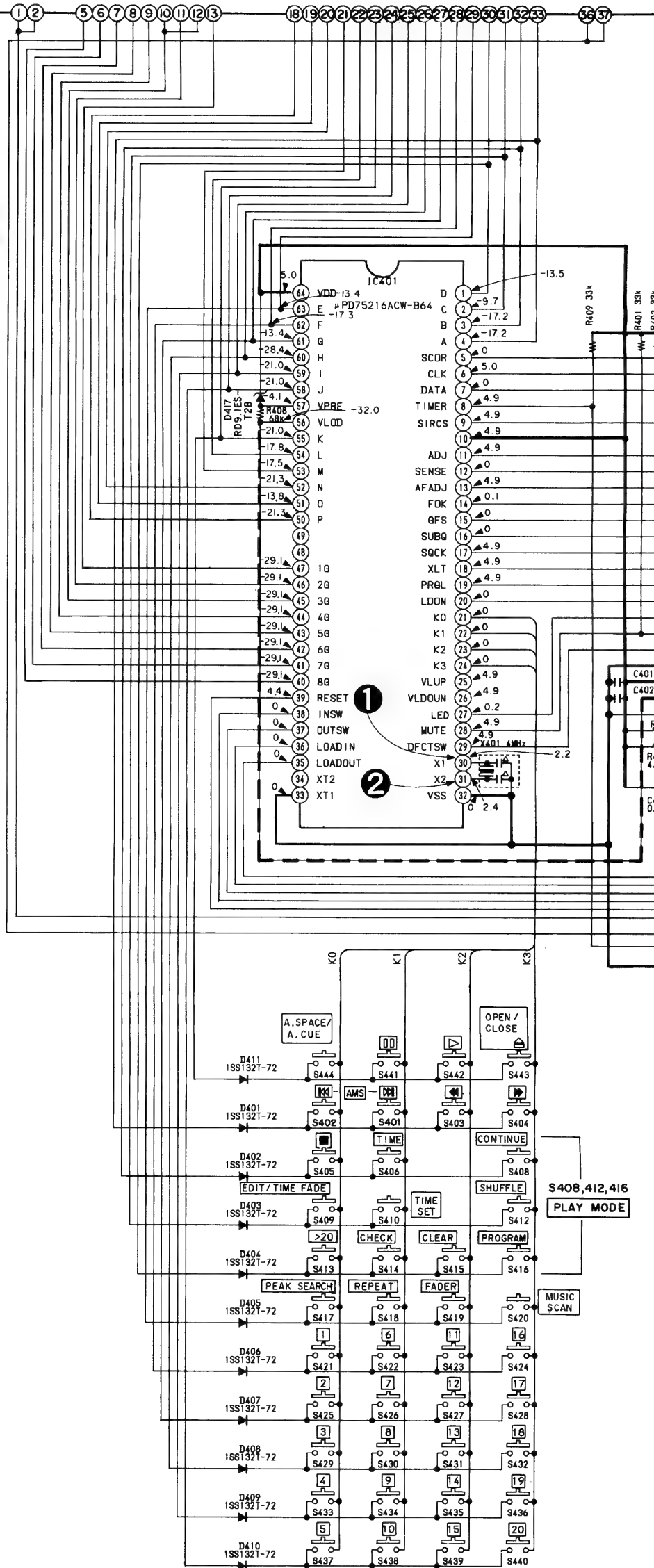
FLD401 FLUORESCENT INDICATOR TUBE

TRACK STEP INDEX PEAK MIN DISC SEC

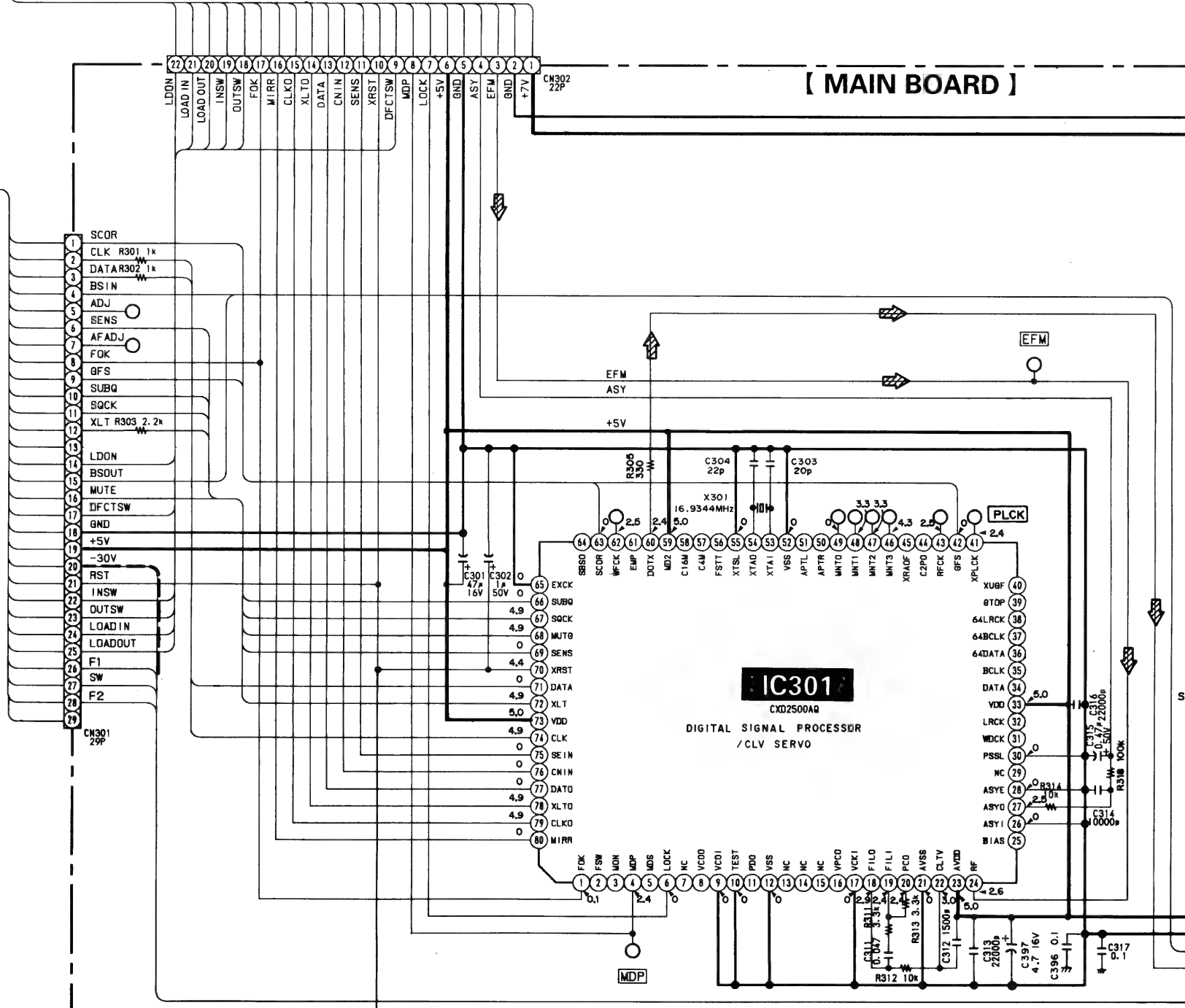
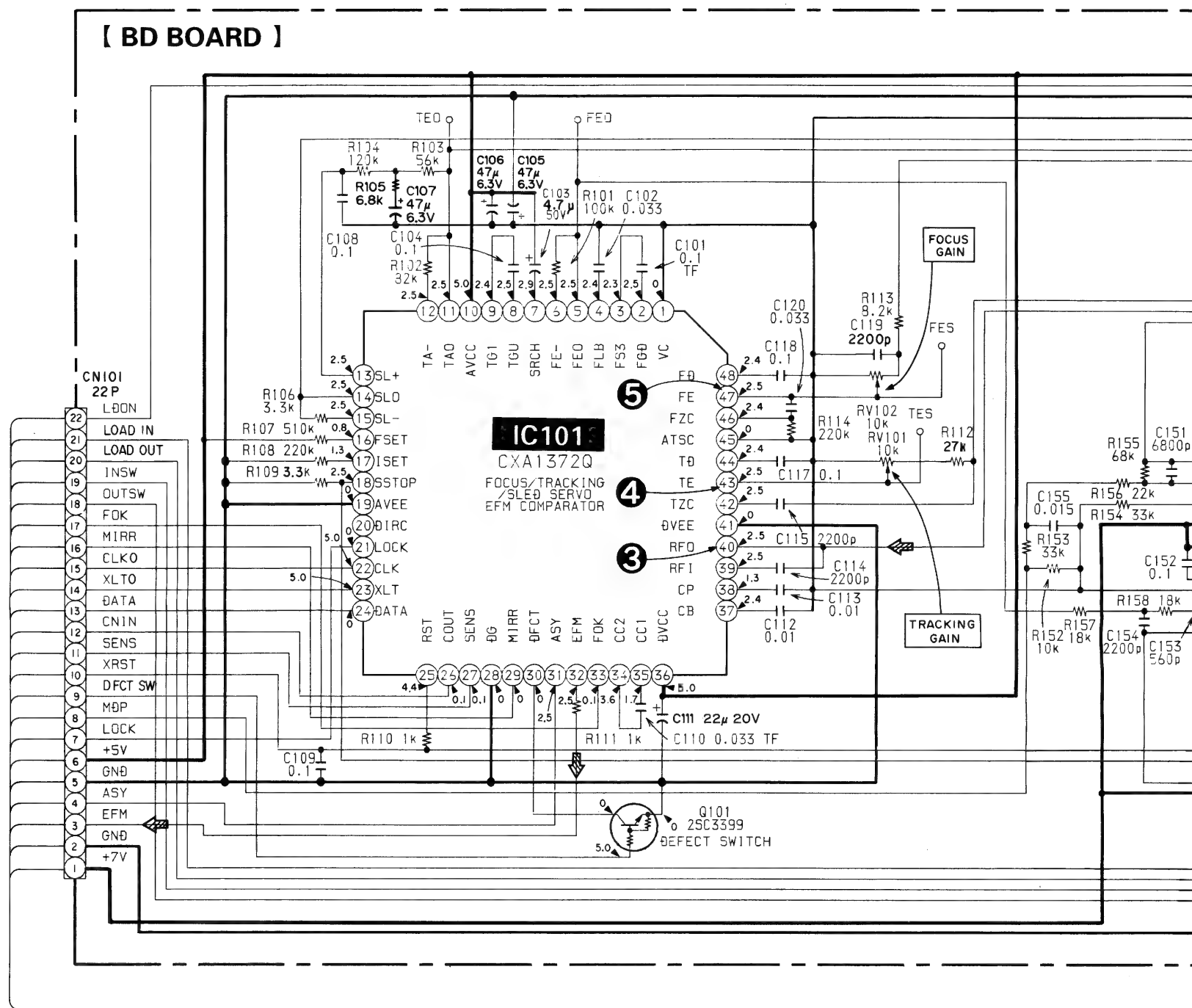
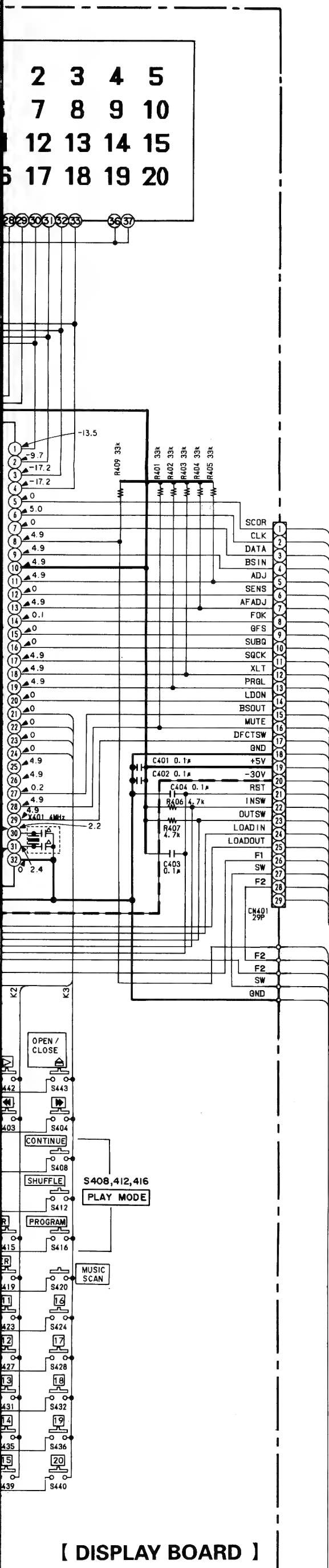
00 00-00.00

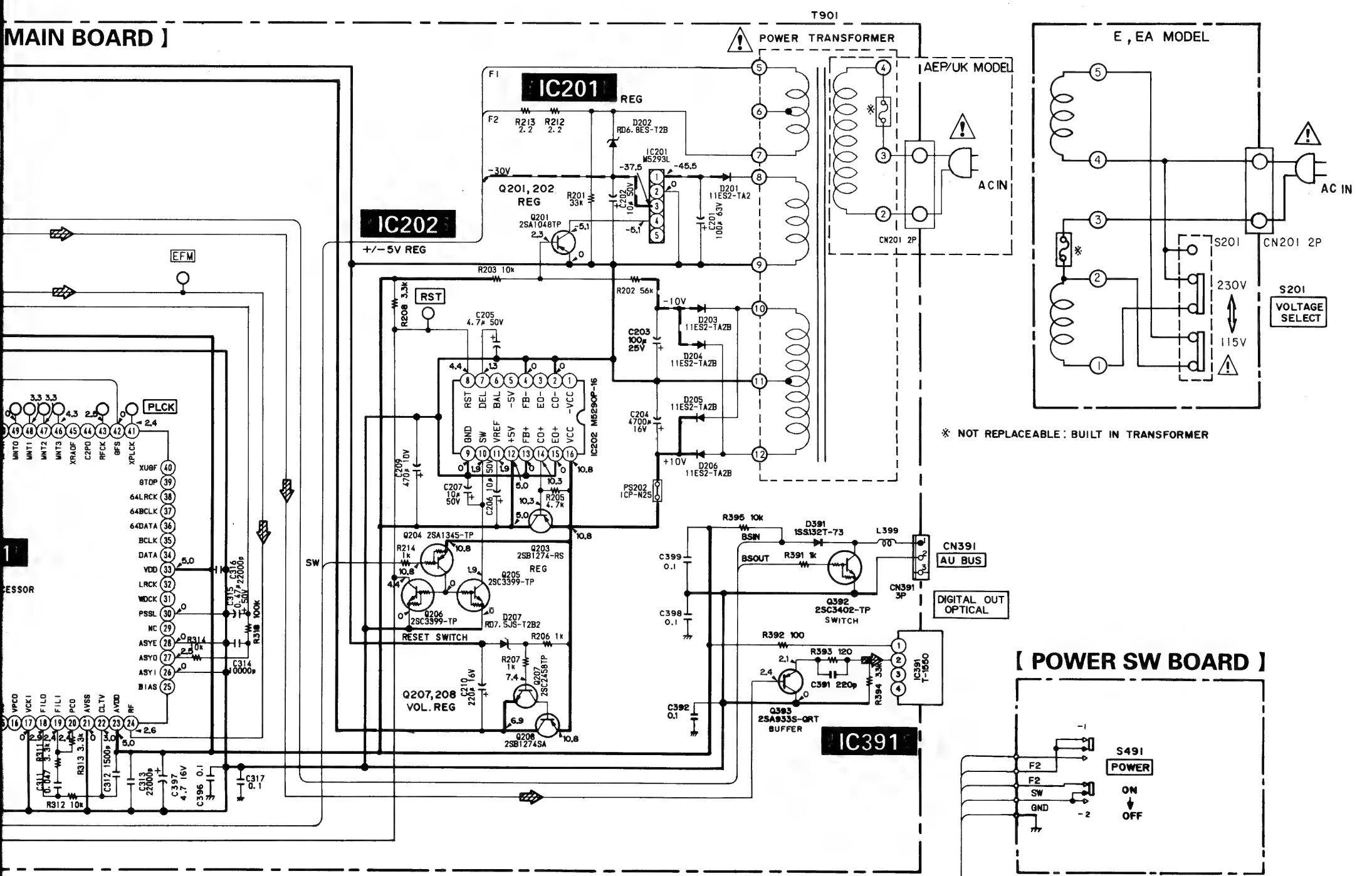
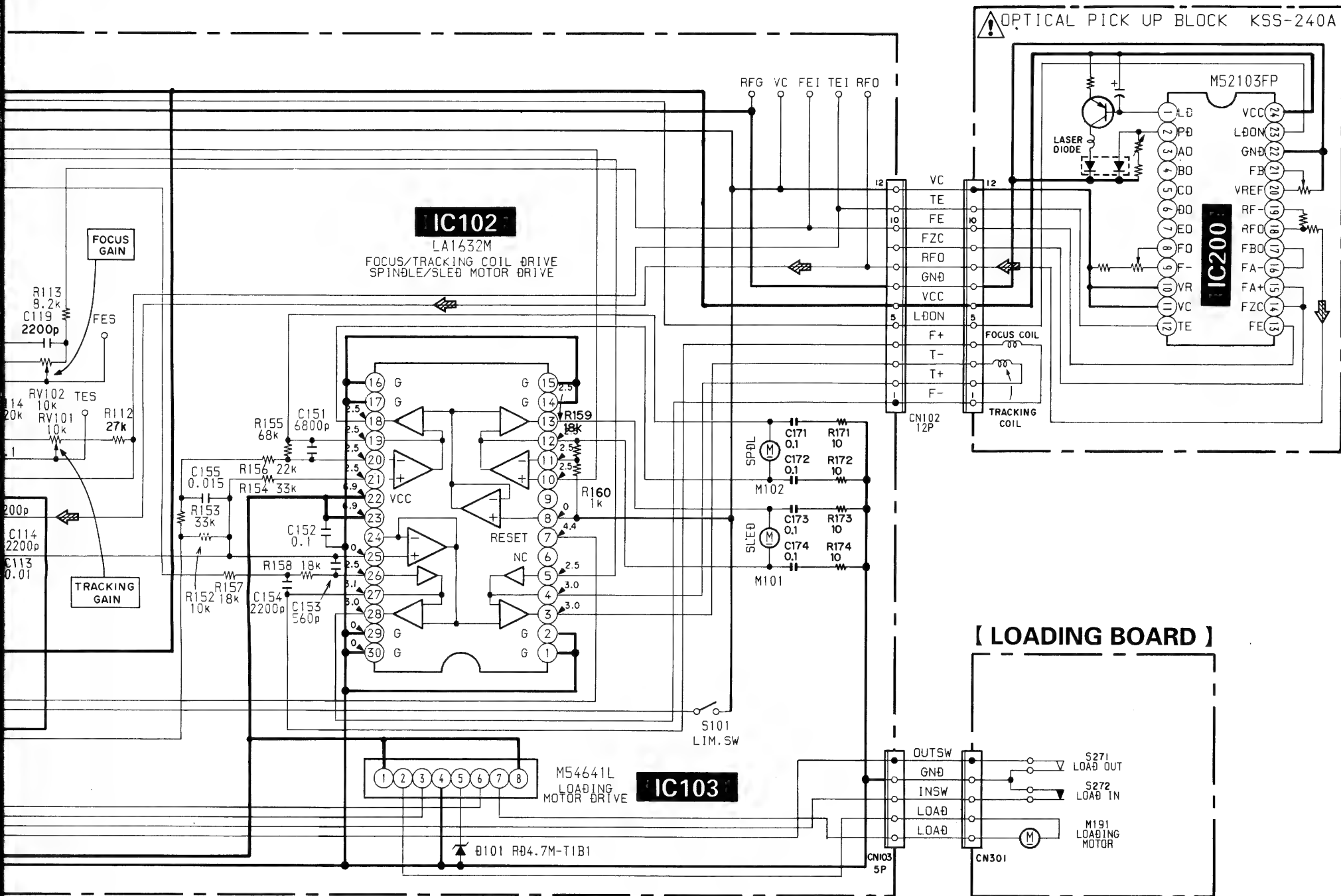
SHUFFLE PROGRAM(MULTI) EDIT A-B TIME FADE  
AUTOSPACE REPEAT 1 A-B

1 2 3 4 5  
6 7 8 9 10  
11 12 13 14 15  
16 17 18 19 20



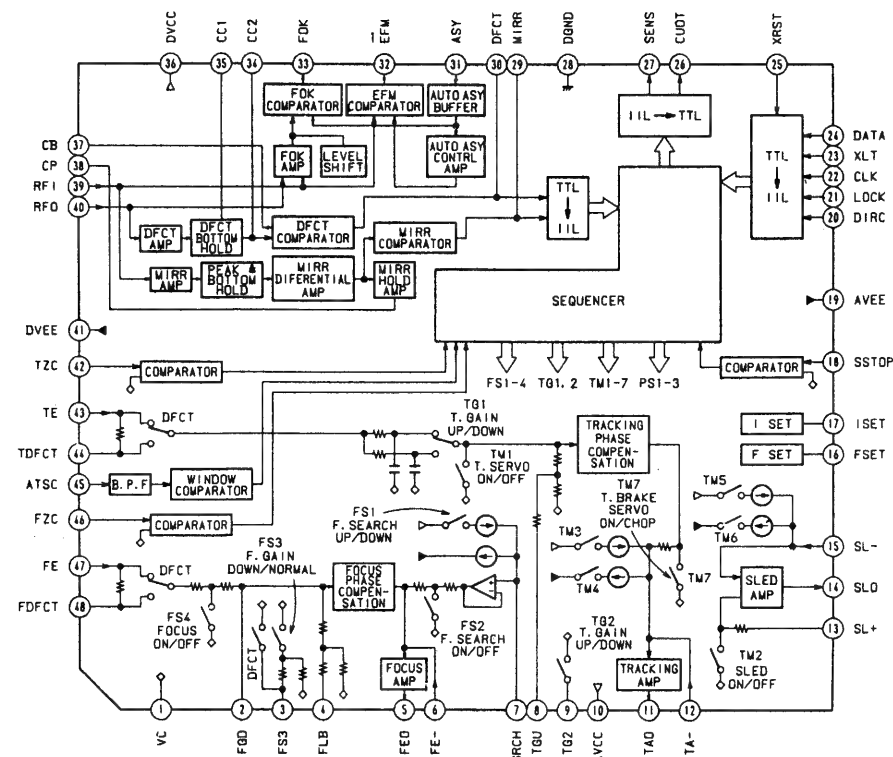
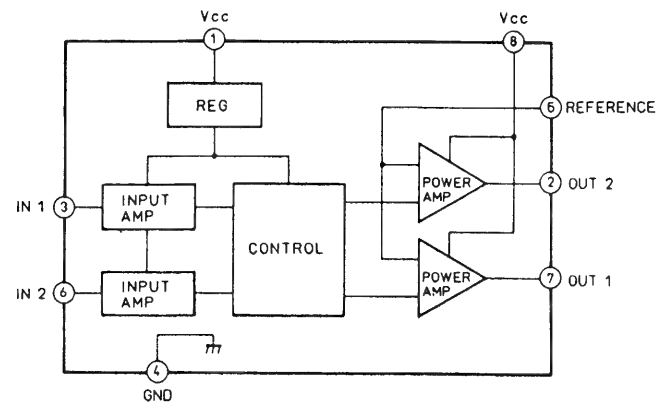
[ DISPLAY ]



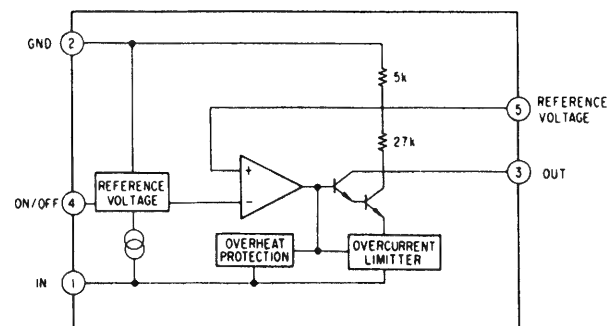


### 3-5. IC BLOCK DIAGRAMS

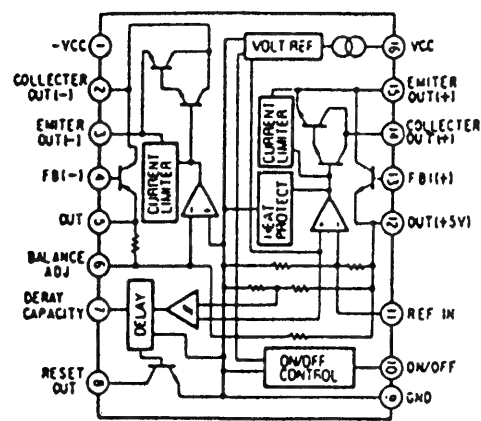
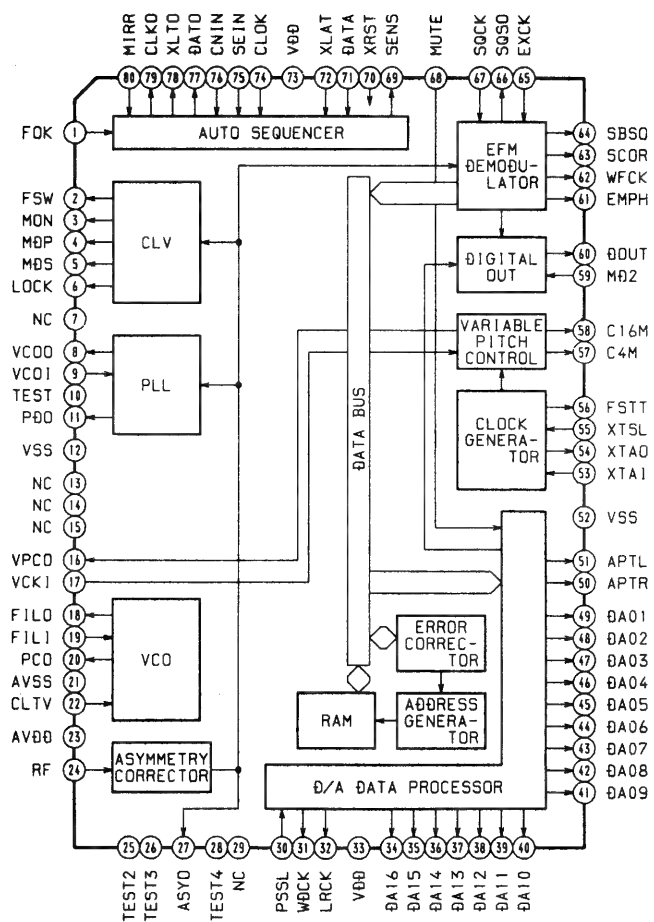
**IC101 CXA1372Q**

**IC103 M54641L**

**IC201 M5293L**



**IC202 M5290P-16**

**IC301 CXD2500AQ**

### 3-6. PIN FUN

- IC401 FL DR

Pin No.	
1 - 4 5	
6 7 8 9 10	
11 12 13 14 15	
16 17 18 19 20	
21 - 24 25	
26 27 28 29 30	
31 32 33 34 35	
36 37 38 39 40 - 47	
48, 49 50 - 54 55	
56 57 58 - 63 64	

### 3-6. PIN FUNCTIONS OF IC401

#### • IC401 FL DRIVE, MASTER CONTROL (μPD75216ACW-B64)

Pin No.	Pin Name	I/O	Description
1 - 4	D - A	O	Segment output to FL tube and key scan output
5	SCOR	I	Subcode sync S0+S1 detection input from IC301 (CXD2500AQ)
6	CLK	O	Serial data transfer clock output to IC301 (CXD2500AQ)
7	DATA	O	Serial data output to IC301 (CXD2500AQ)
8	TIMER	I	Power on/off detect input
9	SIRCS	I	Sircs remote commander detect input
10	PIZ/INT1	I	Not used (+5 V)
11	ADJ	I	Test mode input. GFS check will not activate by "L"
12	SENSE	I	SENS signal input from IC301 (CXD2500AQ)
13	AFADJ	I	Test mode input. All test operation will be activate by "L" mode when power on.
14	FOK	I	Focus OK signal input from IC101 (CXA1372Q)
15	GFS	I	Frame sync signal clock status input from IC301 (CXD2500AQ)
16	SUB Q	I	Sub code (Q data) serial input from IC301 (CXD2500AQ)
17	SQCK	O	Sub code (Q data) readout clock output to IC301 (CXD2500AQ)
18	XLT	O	Serial data latch output to IC301 (CXD2500AQ)
19	PRGL	O	Attenuate data latch clock output (Not used in this unit)
20	LDON	O	Laser diode ON/OFF select output of optical pick-up
21 - 24	K0-K3	I	Key return signal input
25	VLUP	O	Output for motor volume up (Not used in this unit)
26	VLDQUN	O	Output for motor volume down (Not used in this unit)
27	LED	O	Muting output of sircs remote commander
28	MUTE	O	Muting output for IC301 (CXD2500AQ)
29	DFCTSW	O	Defect circuit ON/OFF select output to IC101 (CXA1372Q)
30	X1	I	Clock input (4 MHz)
31	X2	O	Clock output
32	VSS	—	Ground
33	XT1	I	Clock input (Not used in this unit)
34	XT2	—	Not used (open)
35	LOAD OUT	O	Output for turn the loading motor to unloading
36	LOAD IN	O	Output for turn the loading motor to loading
37	OUT SW	I	Input for loading out switch
38	IN SW	I	Output for loading in switch
39	RESET	I	Reset input
40 - 47	8G - 1G	O	Common output to FL tube
48, 49	—	O	Not used (open)
50 - 54	P - L	O	Segment output to FL tube
55	K	O	Segment output to FL tube and key scan output
56	VLOAD	I	Power voltage -30 V for built in FL tube controller
57	VPRE	I	Power supply for the FL tube predriver
58 - 63	J - E	O	Segment output to FL tube and key scan output
64	VDD	—	Power supply (+5 V)

## SECTION 4 EXPLODED VIEWS

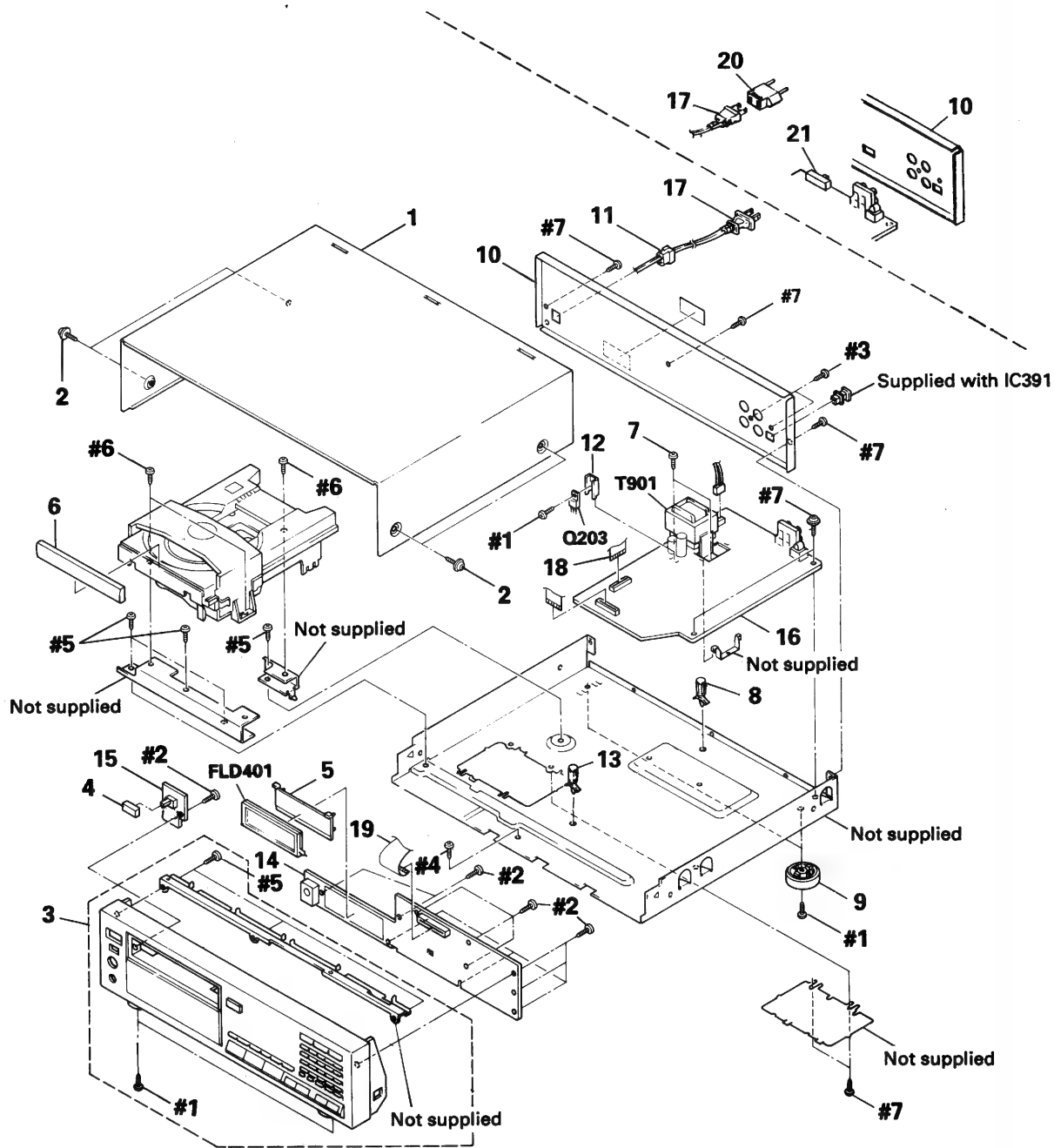
#### NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE(WHITE)...(RED)  
↑                    ↑  
Parts color    Cabinet's color

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware(# mark) list is given in the last of this parts list.
- EA : Saudi Arabia model

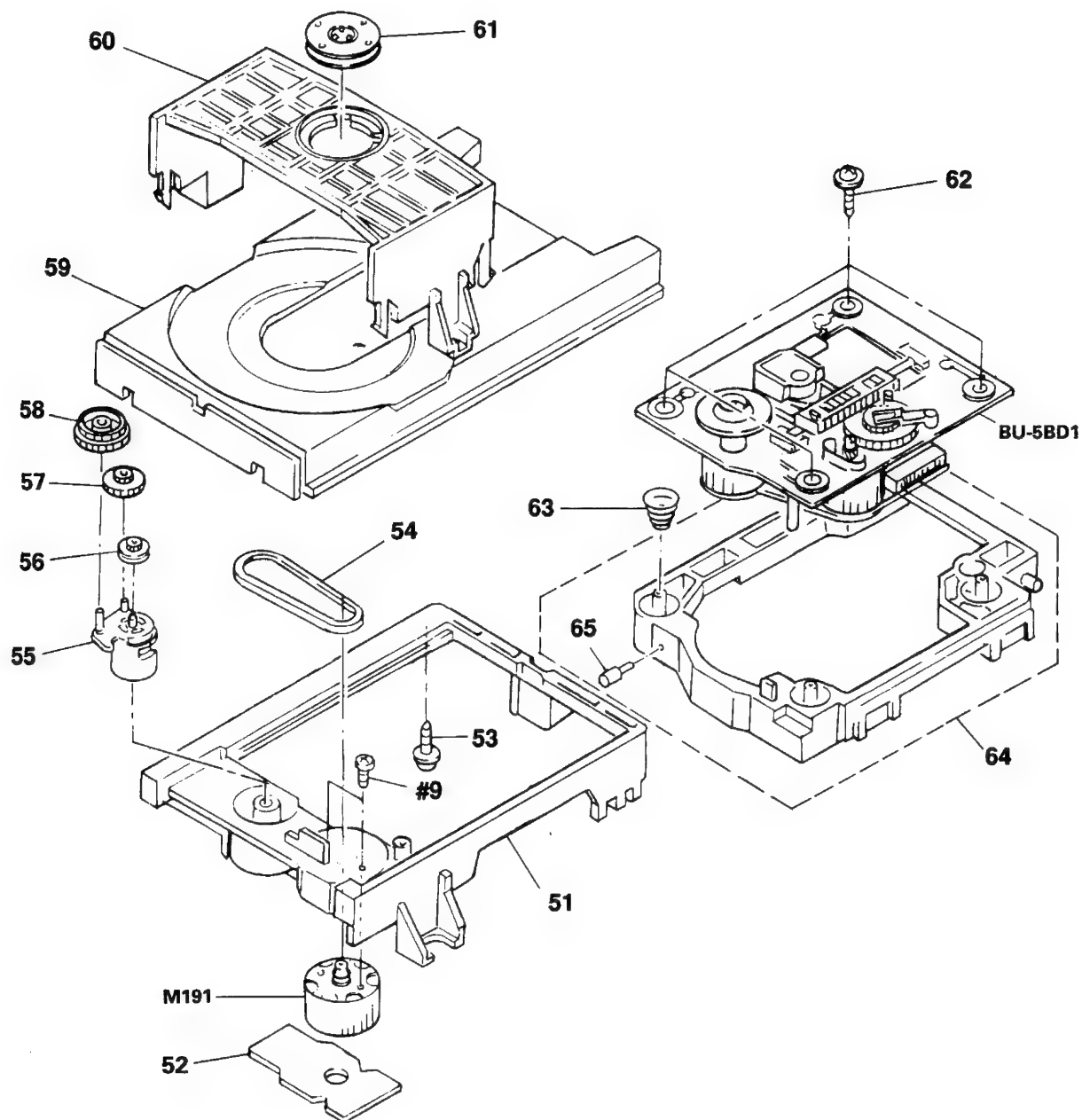
The components identified by mark Δ or dotted line with mark Δ are critical for safety.  
Replace only with part number specified.

### 4-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	4-919-377-01	CASE		13	* 4-944-316-01	HOLDER, PC BOARD (BLACK)	
2	3-704-366-01	SCREW (CASE) (M3X8)		14	* A-4617-724-A	DISPLAY BOARD, COMPLETE	
3	X-4941-316-2	PANEL ASSY, FRONT (AEP)		15	* 1-638-659-11	POWER SW BOARD	
	X-4941-572-2	PANEL ASSY, FRONT (UK, E, EA)		16	* A-4617-723-A	MAIN BOARD, COMPLETE (AEP, UK)	
4	4-922-903-01	BUTTON (PW)			* A-4617-726-A	MAIN BOARD, COMPLETE (E, EA)	
5	* 4-941-993-01	HOLDER, FL TUBE		17	⚠ 1-575-651-21	CORD, POWER (AEP, EA)	
6	4-941-997-01	PANEL, LOADING			⚠ 1-575-653-21	CORD, POWER (E)	
7	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6			⚠ 1-590-379-11	CORD, POWER (UK)	
8	* 3-349-025-41	HOLDER, PC BOARD (WHITE)		18	1-575-160-11	WIRE, FLAT TYPE (22 CORE)	
9	4-934-884-01	FOOT		19	1-590-795-11	WIRE, FLAT TYPE (29 CORE)	
10	* 4-943-116-41	PANEL, BACK (AEP)		20	⚠ 1-569-007-11	ADAPTER, CONVERSION 2P (E)	
	* 4-943-116-51	PANEL, BACK (UK)			⚠ 1-569-008-11	AEAPTER, CONVERSION 2P (EA)	
	* 4-943-116-61	PANEL, BACK (E, EA)		21	1-571-722-11	SWITCH, VOLTAGE SELECTION (E, EA)	
11	* 3-703-244-00	BUSHING (2104), CORD (AEP, UK, EA)		T901	⚠ 1-449-922-11	TRANSFORMER, POWER (AEP, UK)	
	3-703-571-00	BUSHING (S) (4516), CORD (E)		T901	⚠ 1-449-923-11	TRANSFORMER, POWER (E, EA)	
12	4-902-345-01	HEAT SINK					

(2) CD MECHANISM SECTION (CDM14-5BD1)



Ref. No.	Part No.	Description
51	4-933-111-01	CHASSIS (MD)
52	* 1-632-202-11	LOADING BOARD
53	* 4-917-583-21	BRACKET, YOKE
54	4-927-649-01	BELT
55	4-933-109-01	CAM
56	4-927-651-01	PULLEY (S)
57	4-927-628-01	GEAR (C)
58	4-933-107-01	GEAR (PL)
59	4-933-112-01	TABLE, DISK

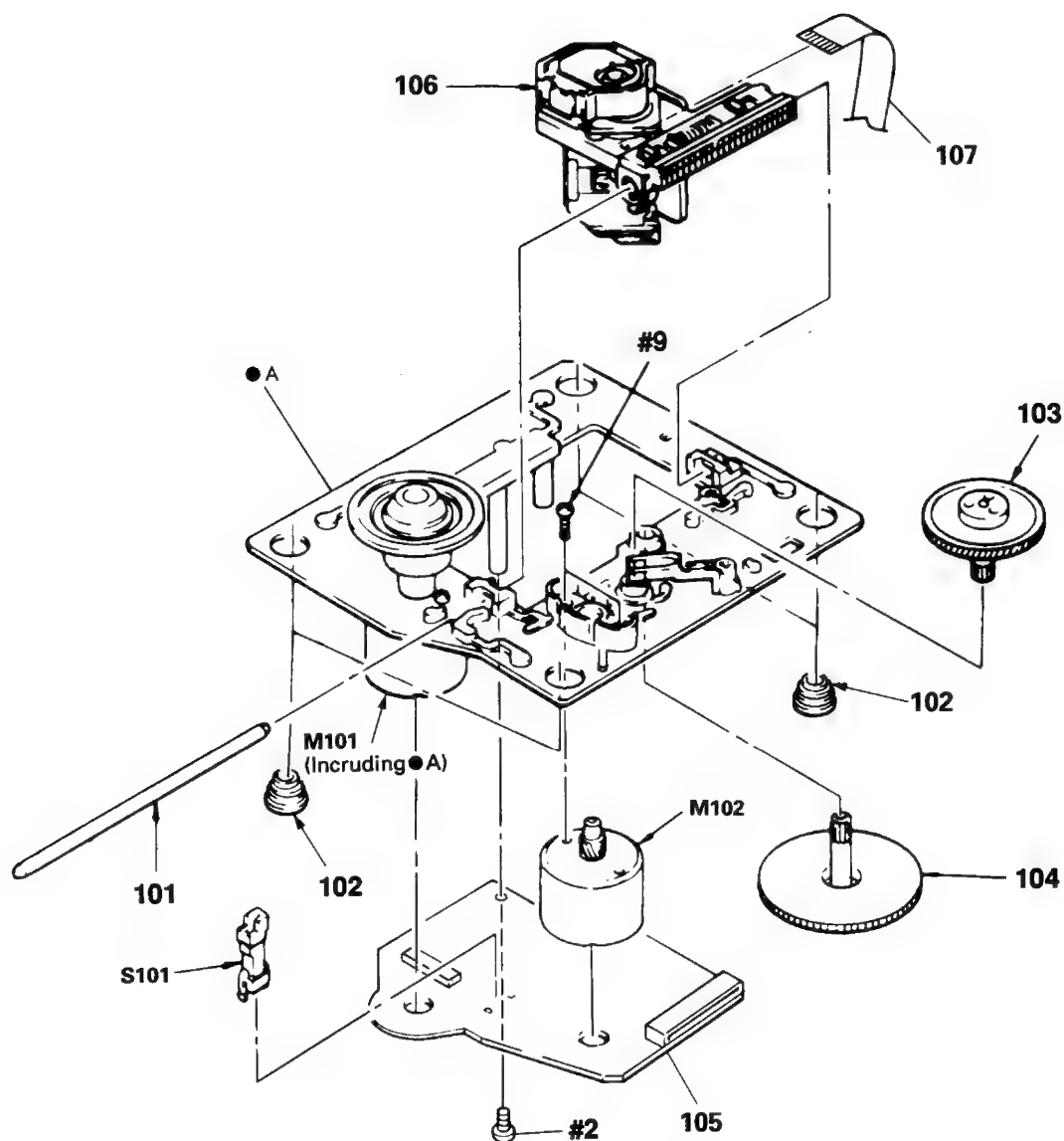
Remarks

Ref. No.	Part No.	Description
60	4-933-110-01	HOLDER (MG)
61	* 1-452-538-11	MAGNET
62	4-933-134-01	SCREW (+PTPWH M2. 6X6)
63	4-917-541-01	SPRING (B)
64	4-933-129-01	HOLDER (BU)
65	4-933-108-01	SHAFT (CAM)
M191	A-4604-363-A	MOTOR (L) ASSY

Remarks



## (3) OPTICAL PICK-UP BLOCK (BU-5BD1)



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
101	4-917-565-01	SHAFT, SLED	
102	4-933-126-01	INSULATOR (A)	
103	4-917-567-01	GEAR (M)	
104	4-917-564-01	GEAR (P), FLATNESS	
105	* A-4617-161-A	BD BOARD, COMPLETE	
106	$\Delta$ 8-848-144-11	DEVICE, OPTICAL KSS-240A	
107	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M101	X-4917-523-3	ASSY, MOTOR (SPINDLE)	
M102	X-4917-504-1	ASSY, MOTOR (SLED)	
S101	1-572-085-11	SWITCH, LEAF	



BD

## NOTE:

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

## SECTION 5

### ELECTRICAL PARTS LIST

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms  
METAL : Metal-film resistor  
METAL OXIDE : Metal Oxide-film resistor  
F : nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example :  
uA...:  $\mu$ A..., uPA...:  $\mu$ PA...,  
uPB...:  $\mu$ PB..., uPC...:  $\mu$ PC...,  
uPD...:  $\mu$ PD...
- CAPACITORS  
uF :  $\mu$ F
- COILS  
uH :  $\mu$ H
- EA : Saudi Arabia model

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* A-4617-161-A BD BOARD, COMPLETE *****				< IC >			
		< CAPACITOR >		IC101	8-752-050-82 IC	CXA13720	
C101	1-163-038-00	CERAMIC CHIP 0.1uF	25V	IC102	8-759-822-36 IC	LA6532M	
C102	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V	IC103	8-759-633-65 IC	M54641L	
C103	1-126-163-11	ELECT 4.7uF	20% 50V	< CHIP JUMPER >			
C104	1-163-038-00	CERAMIC CHIP 0.1uF	25V	J101	1-216-295-00 METAL CHIP	0 5% 1/10W	
C105	1-126-154-11	ELECT 47uF	20% 6.3V	J102	1-216-295-00 METAL CHIP	0 5% 1/10W	
C106	1-126-154-11	ELECT 47uF	20% 6.3V	< TRANSISTOR >			
C107	1-126-154-11	ELECT 47uF	20% 6.3V	Q101	8-729-901-01 TRANSISTOR	DTC144EK	
C108	1-163-038-00	CERAMIC CHIP 0.1uF	25V	< RESISTOR >			
C109	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R101	1-216-097-00 METAL CHIP	100K 5% 1/10W	
C110	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V	R102	1-216-095-00 METAL CHIP	82K 5% 1/10W	
C111	1-131-367-00	TANTALUM 22uF	10% 20V	R103	1-216-091-00 METAL CHIP	56K 5% 1/10W	
C112	1-164-232-11	CERAMIC CHIP 0.01uF	50V	R104	1-216-099-00 METAL CHIP	120K 5% 1/10W	
C113	1-164-232-11	CERAMIC CHIP 0.01uF	50V	R105	1-216-069-00 METAL CHIP	6.8K 5% 1/10W	
C114	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V	R106	1-216-061-00 METAL CHIP	3.3K 5% 1/10W	
C115	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V	R107	1-216-114-00 METAL GLAZE	510K 5% 1/10W	
C117	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R108	1-216-105-00 METAL CHIP	220K 5% 1/10W	
C118	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R109	1-216-061-00 METAL CHIP	3.3K 5% 1/10W	
C119	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V	R110	1-216-049-00 METAL CHIP	1K 5% 1/10W	
C120	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V	R111	1-216-049-00 METAL CHIP	1K 5% 1/10W	
C151	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V	R112	1-216-083-00 METAL CHIP	27K 5% 1/10W	
C152	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R113	1-216-071-00 METAL CHIP	8.2K 5% 1/10W	
C153	1-163-006-11	CERAMIC CHIP 560PF	10% 50V	R114	1-216-105-00 METAL CHIP	220K 5% 1/10W	
C154	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V	R152	1-216-073-00 METAL CHIP	10K 5% 1/10W	
C155	1-163-023-00	CERAMIC CHIP 0.015uF	5% 50V	R153	1-216-085-00 METAL CHIP	33K 5% 1/10W	
C171	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R154	1-216-085-00 METAL CHIP	33K 5% 1/10W	
C172	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R155	1-216-093-00 METAL CHIP	68K 5% 1/10W	
C173	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R156	1-216-081-00 METAL CHIP	22K 5% 1/10W	
C174	1-163-038-00	CERAMIC CHIP 0.1uF	25V	R157	1-216-079-00 METAL CHIP	18K 5% 1/10W	
< CONNECTOR >				R158	1-216-079-00 METAL CHIP	18K 5% 1/10W	
CN101	1-568-796-11	SOCKET, CONNECTOR 22P		R159	1-216-079-00 METAL CHIP	18K 5% 1/10W	
CN102	1-568-795-11	SOCKET, CONNECTOR 12P		R160	1-216-049-00 METAL CHIP	1K 5% 1/10W	
CN103	1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P		R171	1-216-001-00 METAL CHIP	10 5% 1/10W	
< DIODE >				R172	1-216-001-00 METAL CHIP	10 5% 1/10W	
D101	8-719-105-72	DIODE RD4.7M-B1		R173	1-216-001-00 METAL CHIP	10 5% 1/10W	

BD

LOADING

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R174	1-216-001-00	METAL CHIP 10 5% 1/10W < VARIABLE RESISTOR >		C392	1-164-159-11	CERAMIC 0.1uF 50V	
RV101	1-238-016-11	RES, ADJ, CARBON 10K		C396	1-164-159-11	CERAMIC 0.1uF 50V	
RV102	1-238-016-11	RES, ADJ, CARBON 10K		C397	1-126-022-11	ELECT 47uF 20% 16V	
		< SWITCH >		C398	1-164-159-11	CERAMIC 0.1uF 50V	
S101	1-572-085-11	SWITCH, LEAF		C399	1-164-159-11	CERAMIC 0.1uF 50V	
*****				< CONNECTOR >			
	* 1-632-202-11	LOADING BOARD		CN201	* 1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P	
		*****		CN301	* 1-568-844-11	SOCKET, CONNECTOR 29P	
		< CONNECTOR >		CN302	* 1-568-822-11	SOCKET, CONNECTOR 22P	
CN301	* 1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P		CN391	* 1-565-561-11	PIN, CONNECTOR 3P	
		< SWITCH >		< DIODE >			
S271	1-572-086-11	SWITCH, LEAF (LOAD OUT)		D201	8-719-200-82	DIODE 11ES2	
S272	1-572-086-11	SWITCH, LEAF (LOAD IN)		D202	8-719-109-97	DIODE RD6.8ES-B2	
*****				D203	8-719-200-82	DIODE 11ES2	
	* A-4617-723-A	MAIN BOARD, COMPLETE (AEP, UK)		D204	8-719-200-82	DIODE 11ES2	
		*****		D205	8-719-200-82	DIODE 11ES2	
	* A-4617-726-A	MAIN BOARD, COMPLETE (E, EA)		D206	8-719-200-82	DIODE 11ES2	
		*****		D207	8-719-114-49	DIODE RD7.5JS-B2	
	1-571-722-11	SWITCH, VOLTAGE SELECTION (E, EA)		D391	8-719-912-20	DIODE 1SS120	
	4-902-345-01	HEAT SINK		< IC >			
		< CAPACITOR >		IC201	8-759-633-42	IC M5293L	
C201	1-124-572-11	ELECT 100uF 20% 63V		IC202	8-759-630-21	IC M5290P-16	
C202	1-126-059-11	ELECT 10uF 20% 50V		IC301	8-752-337-26	IC CXD2500AQ	
C203	1-124-478-11	ELECT 100uF 20% 25V		IC391	8-749-921-20	IC T-1550	
C204	1-126-937-11	ELECT 4700uF 20% 16V		< COIL >			
C205	1-126-163-11	ELECT 4.7uF 20% 50V		L398	1-410-953-11	INDUCTOR, SMALL TYPE	
C206	1-126-059-11	ELECT 10uF 20% 50V		L399	1-424-090-11	COIL, LINE FILTER	
C207	1-126-059-11	ELECT 10uF 20% 50V		< IC LINK >			
C209	1-124-997-11	ELECT 470uF 20% 10V		PS202	△ 1-532-637-00	LINK, IC	
C210	1-126-024-11	ELECT 220uF 20% 16V		< TRANSISTOR >			
C301	1-126-022-11	ELECT 47uF 20% 16V		Q201	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C302	1-126-301-11	ELECT 1uF 20% 50V		Q203	8-729-111-67	TRANSISTOR 2SB1274-RS	
C303	1-162-206-31	CERAMIC 20PF 5% 50V		Q204	8-729-900-65	TRANSISTOR DTA144ES	
C304	1-162-207-31	CERAMIC 22PF 5% 50V		Q205	8-729-900-89	TRANSISTOR DTC144ES	
C311	1-130-491-00	MYLAR 0.047uF 5% 50V		Q206	8-729-900-89	TRANSISTOR DTC144ES	
C312	1-161-374-11	CERAMIC 0.0015uF 20% 50V		Q207	8-729-230-45	TRANSISTOR 2SC2458-YGR	
C313	1-161-494-00	CERAMIC 0.022uF 25V		Q208	8-729-111-67	TRANSISTOR 2SB1274SA-Q	
C314	1-162-306-11	CERAMIC 0.01uF 20% 16V		Q392	8-729-900-80	TRANSISTOR DTC114ES	
C315	1-126-300-11	ELECT 0.47uF 20% 50V		Q393	8-729-920-68	TRANSISTOR 2SA933S-QR	
C316	1-161-494-00	CERAMIC 0.022uF 25V		< RESISTOR >			
C317	1-164-159-11	CERAMIC 0.1uF 50V		R201	1-249-435-11	CARBON 33K 5% 1/4W	
C391	1-162-286-31	CERAMIC 220PF 10% 50V		R202	1-249-438-11	CARBON 56K 5% 1/4W	
				R203	1-249-429-11	CARBON 10K 5% 1/4W	
				R205	1-249-425-11	CARBON 4.7K 5% 1/4W	
				R206	1-249-417-11	CARBON 1K 5% 1/4W	
				R207	1-249-417-11	CARBON 1K 5% 1/4W	

The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

## MAIN

## DISPLAY

## POWER SW

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R208	1-249-423-11	CARBON	3.3K 5% 1/4W	D408	8-719-912-20	DIODE 1SS120	
R212	1-249-385-11	CARBON	2.2 5% 1/6W	D409	8-719-912-20	DIODE 1SS120	
R213	1-249-385-11	CARBON	2.2 5% 1/6W	D410	8-719-912-20	DIODE 1SS120	
R214	1-249-417-11	CARBON	1K 5% 1/4W	D411	8-719-912-20	DIODE 1SS120	
R301	1-249-417-11	CARBON	1K 5% 1/4W	D417	8-719-110-13	DIODE RD9.1ES-B2	
R302	1-249-417-11	CARBON	1K 5% 1/4W			( FILTER )	
R303	1-249-421-11	CARBON	2.2K 5% 1/4W	FLD401	1-519-618-21	INDICATOR TUBE, FLUORESCENT	
R305	1-249-411-11	CARBON	330 5% 1/4W			( IC )	
R311	1-249-423-11	CARBON	3.3K 5% 1/4W	IC401	8-759-151-90	IC $\mu$ PD75216ACW-B16	
R312	1-249-429-11	CARBON	10K 5% 1/4W			( RESISTOR )	
R313	1-249-423-11	CARBON	3.3K 5% 1/4W	R401	1-249-435-11	CARBON 33K 5% 1/4W	
R314	1-249-429-11	CARBON	10K 5% 1/4W	R402	1-249-435-11	CARBON 33K 5% 1/4W	
R318	1-249-441-11	CARBON	100K 5% 1/4W	R403	1-249-435-11	CARBON 33K 5% 1/4W	
R391	1-249-417-11	CARBON	1K 5% 1/4W	R404	1-249-435-11	CARBON 33K 5% 1/4W	
R392	1-249-405-11	CARBON	100 5% 1/4W	R405	1-249-435-11	CARBON 33K 5% 1/4W	
R393	1-249-406-11	CARBON	120 5% 1/4W	R406	1-249-425-11	CARBON 4.7K 5% 1/4W	
R394	1-249-435-11	CARBON	33K 5% 1/4W	R407	1-249-425-11	CARBON 4.7K 5% 1/4W	
R395	1-249-429-11	CARBON	10K 5% 1/4W	R408	1-249-439-11	CARBON 68K 5% 1/4W	
		( TRANSFORMER )		R409	1-249-435-11	CARBON 33K 5% 1/4W	
T901	$\Delta$ 1-449-922-11	TRANSFORMER, POWER (AEP, UK)				( SWITCH )	
	$\Delta$ 1-449-923-11	TRANSFORMER, POWER (E, EA)		S401	1-572-198-11	SWITCH, KEY BOARD ( $\square \triangleleft$ )	
		( CRYSTAL )		S402	1-572-198-11	SWITCH, KEY BOARD ( $\triangleright \square$ )	
X301	1-567-908-11	VIBRATOR, CRYSTAL (16.9344MHz)		S403	1-572-198-11	SWITCH, KEY BOARD ( $\triangleleft \triangleleft$ )	
		*****		S404	1-572-198-11	SWITCH, KEY BOARD ( $\triangleright \triangleright$ )	
	* A-4617-724-A	DISPLAY BOARD, COMPLETE		S405	1-572-198-11	SWITCH, KEY BOARD ( $\square$ )	
		*****		S406	1-572-198-11	SWITCH, KEY BOARD (TIME)	
	* 1-638-659-11	POWER SW BOARD		S408	1-572-198-11	SWITCH, KEY BOARD (CONTINUE)	
		*****		S409	1-572-198-11	SWITCH, KEY BOARD (EDIT/T. FADE)	
	* 4-934-853-01	CUSHION (FL)		S410	1-572-198-11	SWITCH, KEY BOARD (TIME SET)	
	* 4-941-993-01	HOLDER, FL TUBE		S412	1-572-198-11	SWITCH, KEY BOARD (SHUFFLE)	
		( CAPACITOR )		S413	1-572-198-11	SWITCH, KEY BOARD ( $\rangle 20$ )	
C401	1-164-159-11	CERAMIC 0.1 $\mu$ F	50V	S414	1-572-198-11	SWITCH, KEY BOARD (CHECK)	
C402	1-164-159-11	CERAMIC 0.1 $\mu$ F	50V	S415	1-572-198-11	SWITCH, KEY BOARD (CLEAR)	
C403	1-164-159-11	CERAMIC 0.1 $\mu$ F	50V	S416	1-572-198-11	SWITCH, KEY BOARD (PROGRAM)	
C404	1-164-159-11	CERAMIC 0.1 $\mu$ F	50V	S417	1-572-198-11	SWITCH, KEY BOARD (P. SEARCH)	
		( CONNECTOR )		S418	1-572-198-11	SWITCH, KEY BOARD (REPEAT)	
CN401	* 1-568-844-11	SOCKET, CONNECTOR 29P		S419	1-572-198-11	SWITCH, KEY BOARD (FADER)	
		( DIODE )		S420	1-572-198-11	SWITCH, KEY BOARD (M. SCAN)	
D401	8-719-912-20	DIODE 1SS120		S421	1-572-198-11	SWITCH, KEY BOARD ( 1 )	
D402	8-719-912-20	DIODE 1SS120		S422	1-572-198-11	SWITCH, KEY BOARD ( 6 )	
D403	8-719-912-20	DIODE 1SS120		S423	1-572-198-11	SWITCH, KEY BOARD ( 11 )	
D404	8-719-912-20	DIODE 1SS120		S424	1-572-198-11	SWITCH, KEY BOARD ( 16 )	
D405	8-719-912-20	DIODE 1SS120		S425	1-572-198-11	SWITCH, KEY BOARD ( 2 )	
D406	8-719-912-20	DIODE 1SS120		S426	1-572-198-11	SWITCH, KEY BOARD ( 7 )	
D407	8-719-912-20	DIODE 1SS120		S427	1-572-198-11	SWITCH, KEY BOARD ( 12 )	
				S428	1-572-198-11	SWITCH, KEY BOARD ( 17 )	
				S429	1-572-198-11	SWITCH, KEY BOARD ( 3 )	
				S430	1-572-198-11	SWITCH, KEY BOARD ( 8 )	

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

## DISPLAY

## POWER SW

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
S431	1-572-198-11	SWITCH, KEY BOARD ( 13 )		ACCESSORY & PACKING MATERIAL			
S432	1-572-198-11	SWITCH, KEY BOARD ( 18 )		*****			
S433	1-572-198-11	SWITCH, KEY BOARD ( 4 )		3-752-819-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH)		
S434	1-572-198-11	SWITCH, KEY BOARD ( 9 )		3-752-819-41	MANUAL, INSTRUCTION (GERMAN/DUTCH)		
S435	1-572-198-11	SWITCH, KEY BOARD ( 14 )		* 4-941-548-01	LABEL, CLASS 1		
S436	1-572-198-11	SWITCH, KEY BOARD ( 19 )		* 4-942-896-21	INDIVIDUAL CARTON		
S437	1-572-198-11	SWITCH, KEY BOARD ( 5 )		* 4-944-163-01	CUSHION		
S438	1-572-198-11	SWITCH, KEY BOARD ( 10 )					
S439	1-572-198-11	SWITCH, KEY BOARD ( 15 )		* 4-941-928-01	CUSHION (FRONT) (UK, E, EA)		
S440	1-572-198-11	SWITCH, KEY BOARD ( 20 )		* 4-941-929-01	CUSHION (REAR) (UK, E, EA)		
S441	1-572-198-11	SWITCH, KEY BOARD ( □ )		*****			
S442	1-572-198-11	SWITCH, KEY BOARD ( ▷ )		HARDWARE LIST			
S443	1-572-198-11	SWITCH, KEY BOARD ( △ )		#1	7-682-547-09	SCREW +BVTT 3X6 (S)	
S444	1-572-198-11	SWITCH, KEY BOARD ( AUTO CUE )		#2	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
S491	1-554-118-00	SWITCH, PUSH (1 KEY)		#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
		( CRYSTAL )		#4	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
X401	1-577-358-21	VIBRATOR, CERAMIC ( 4MHz )		#5	7-682-547-04	SCREW +BVTT 3X6 (S)	
*****				#6	7-682-548-04	SCREW +BVTT 3X8 (S)	
		MISCELLANEOUS		#7	7-682-548-09	SCREW +BVTT 3X8 (S)	
		*****		#8	7-621-775-10	SCREW +B 2.6X4	
17	△	1-575-651-21	CORD, POWER (AEP, EA)	#9	7-621-255-15	SCREW +P 2X3	
	△	1-575-653-21	CORD, POWER (E)				
	△	1-590-379-11	CORD, POWER (UK)				
18		1-575-160-11	WIRE, FLAT TYPE (22 CORE)				
19		1-590-795-11	WIRE, FLAT TYPE (29 CORE)				
20	△	1-569-007-11	ADAPTER, CONVERSION 2P (E)				
	△	1-569-008-11	ADAPTER, CONVERSION 2P (EA)				
21	△	1-571-722-11	SWITCH, VOLTAGE SELECTION (E, EA)				
61	*	1-452-538-11	MAGNET				
106	△	8-848-144-11	DEVICE, OPTICAL KSS-240A				
107		1-575-001-11	WIRE, FLAT TYPE (12 CORE)				
M101		X-4917-523-3	ASSY, MOTOR (SPINDLE)				
M102		X-4917-504-1	ASSY, MOTOR (SLED)				
M191		A-4604-363-A	MOTOR (L) ASSY				
*****							

The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.



# ST-D905

## SERVICE MANUAL

*AEP Model  
UK Model*





This set is FM stereo/FM-AM.  
Tuner section in LBT-D905CD.

### SPECIFICATIONS

System	FM stereo FM/AM superheterodyne tuner
FM tuner section	
Tuning range	87.5 to 108 MHz
Antenna	75 ohms unbalanced
Intermediate frequency	10.7 MHz
MW/LW tuner section	
Tuning range	MW: 531 to 1,602 kHz LW: 153 to 279 kHz
Antenna	AM loop antenna External antenna terminal
Intermediate frequency	450 kHz
Power requirements	240 V AC, 50/60 Hz (UK model) 220-230V AC, 50/60Hz (other model)
Power consumption	10 W
AC outlet	2 switched, total 450 W max.
Weight	Approx. 2.6 kg
Dimensions	Approx. 355 × 82.5 × 325 mm (w/h/d, including projections)

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

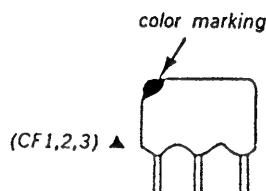
**FM STEREO/FM-AM TUNER**  
**SONY®**

## SECTION 1

### SERVICING NOTES

#### Note on Ceramic Filter (CF1,2,3) ▲ Replacement.

This set employs three ceramic filters (CF1,2,3) ▲ which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by \*D609, 610 is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



○ : Mounted  
× : not Mounted

Ceramic filter		Mount		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	* D609	* D610	
White	10,750	○	×	10,750
Red	10,700	×	×	10,700
Black	10,650	×	○	10,650

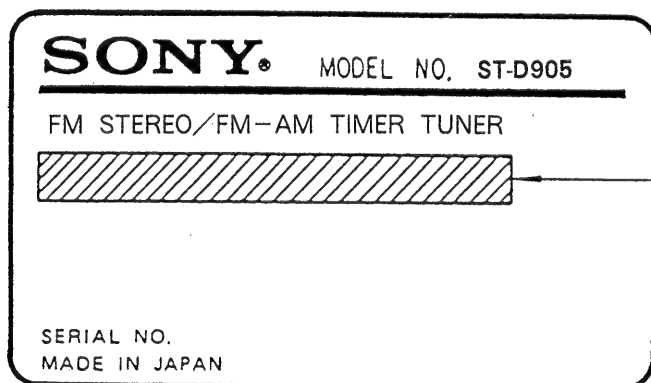
FM intermediate frequency is determined by the three types as shown above, Ceramic filters of same center frequency, i.e., of same color coding should be used for CF1, CF2, and CF3.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

▲ : AEP, UK Model : CF1, 2  
G, IT Model : CF1, 2, 3

#### MODEL IDENTIFICATION

—Specification Label—

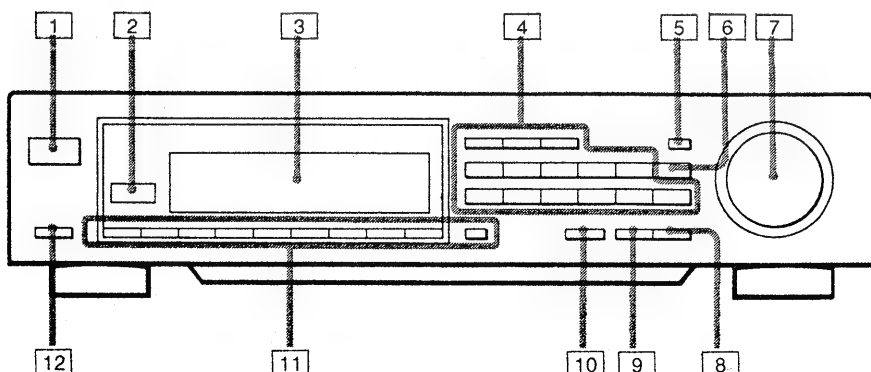


AEP, Germany,

Italian Model : AC : 220-230V~50/60Hz

UK Model : AC : 240V~50/60Hz

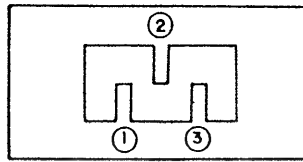
#### LOCATION OF CONTROLS



- 1 SYSTEM POWER switch
- 2 Remote sensor
- 3 Display window
- 4 Buttons for storing station frequencies
- 5 BAND selector
- 6 SCAN button
- 7 TUNING control
- 8 DIMMER button
- 9 FREQUENCY/TIME button
- 10 AUTO TUNING button
- 11 Buttons for setting the clock and timer
- 12 SLEEP button

## Signal of System Control Connector

CNJ702  
AU BUS



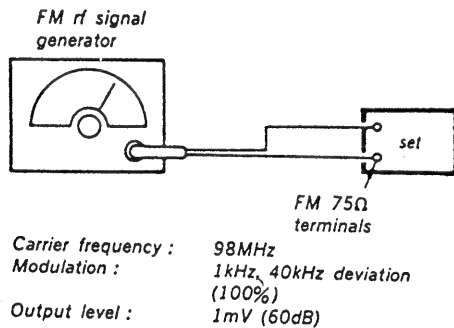
1	AUB
2	GND
3	

## SECTION 2 ELECTRICAL ADJUSTMENTS

### FM SECTION

#### FM DISCRIMINATOR ADJUSTMENT

Setting:

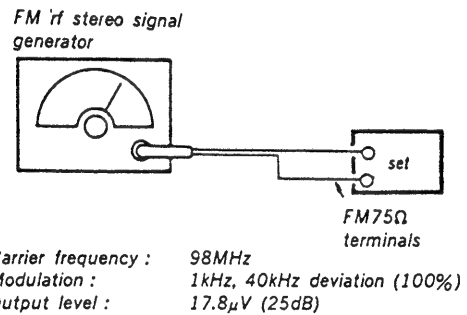


Procedure :

1. Tune the set to 98MHz.
  2. Adjust T21 for 0V reading on the VOM.
- Note : FM tuning level adjustment should be made after FM discriminator alignment.

#### FM TUNING LEVEL ADJUSTMENT

Setting :

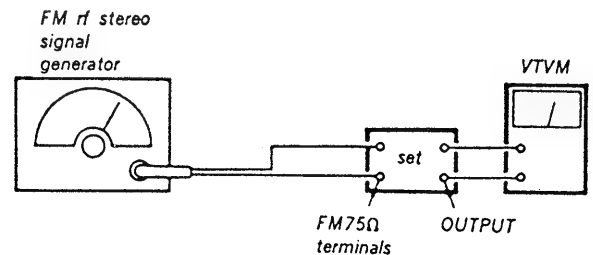


Procedure :

1. Tune the set to 98MHz.
2. Adjust RV24 so that the TUNED LED goes on.

#### FM STEREO SEPARATION ADJUSTMENT

Procedure :





FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ <sup>ⓑ</sup> Adjust RV21 for minimum reading.
R-CH	R-CH	ⓒ
L-CH	R-CH	ⓓ <sup>Ⓓ</sup> Adjust RV21 for minimum reading.

L-CH Stereo separation : Ⓐ-Ⓑ

R-CH Stereo separation : ⓒ-ⓓ

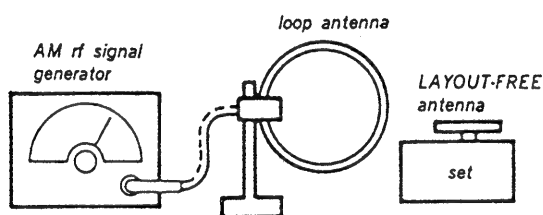
The separations of both channels should be equal.

## MW/LW SECTION

### AM TUNING LEVEL ADJUSTMENT

BAND select switch : LW

Setting :



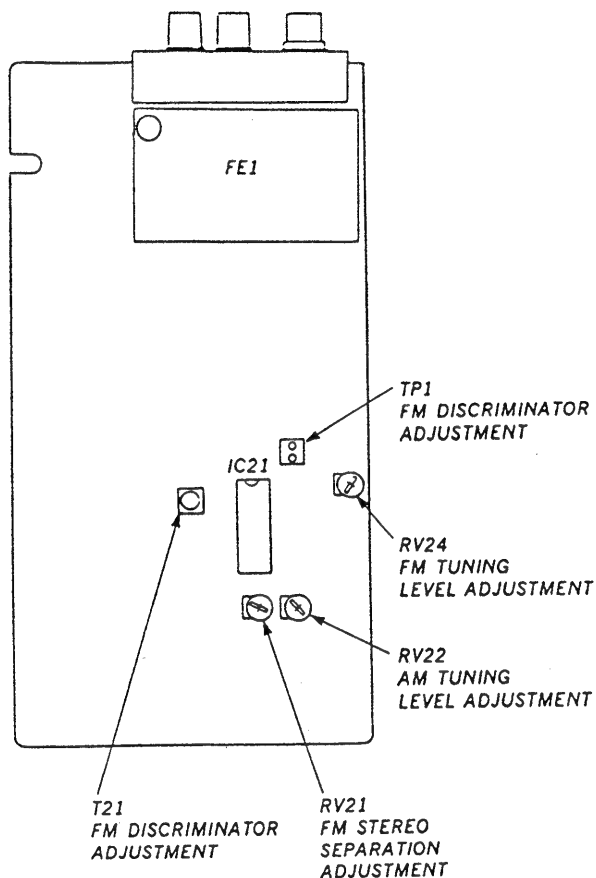
Carrier frequency : 216kHz  
Modulation : 400Hz, 30% modulation

### Procedure :

1. Set loop antenna so that the LAYOUT-FREE antenna input level becomes 2.5mV/m (68dB).
2. Tune the set to 216kHz.
3. Adjust the RV22 so that the TUNED LED goes on.

### Adjustment Location :

—tuner board—



## SECTION 3 DIAGRAMS

### 3-1. SEMICONDUCTOR LEAD LAYOUTS

LA5667

2SK246-GR3

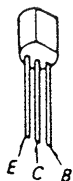
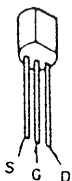
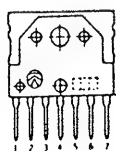
2SB1116A-L

DTA144ES  
DTC114ES  
2SA1317-STU  
2SC2603-EF  
2SC2669-OY  
2SC3113-A  
2SC3330-STU  
2SC3402

2SC2785-HFE

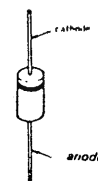
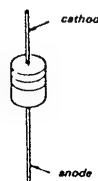
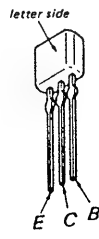
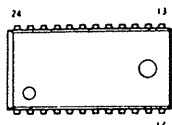
HZS6C3L  
1SS120

UZP-5.6B  
10E2N

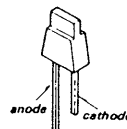


LC7218

SBX1610-59

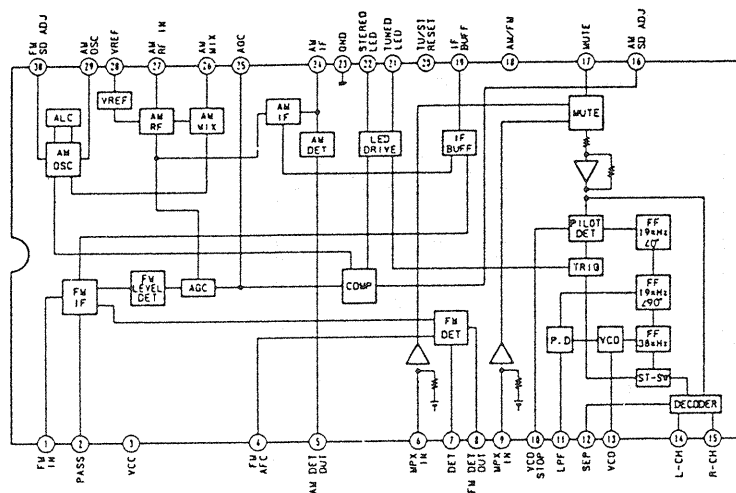


HZS30-2L

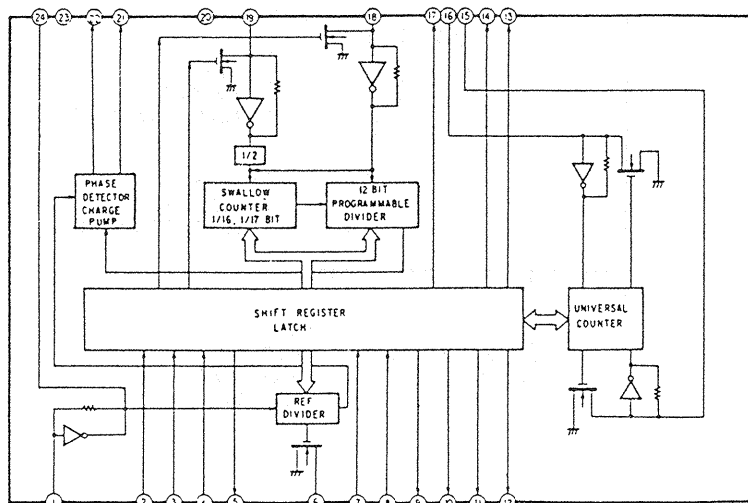


### 3-2. IC BLOCK DIAGRAMS

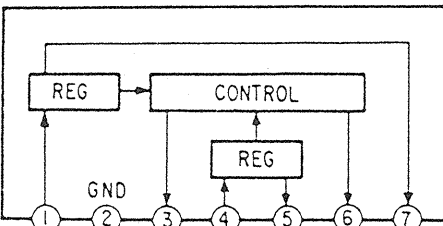
## IC21 LA1851N



IC81 LC7218



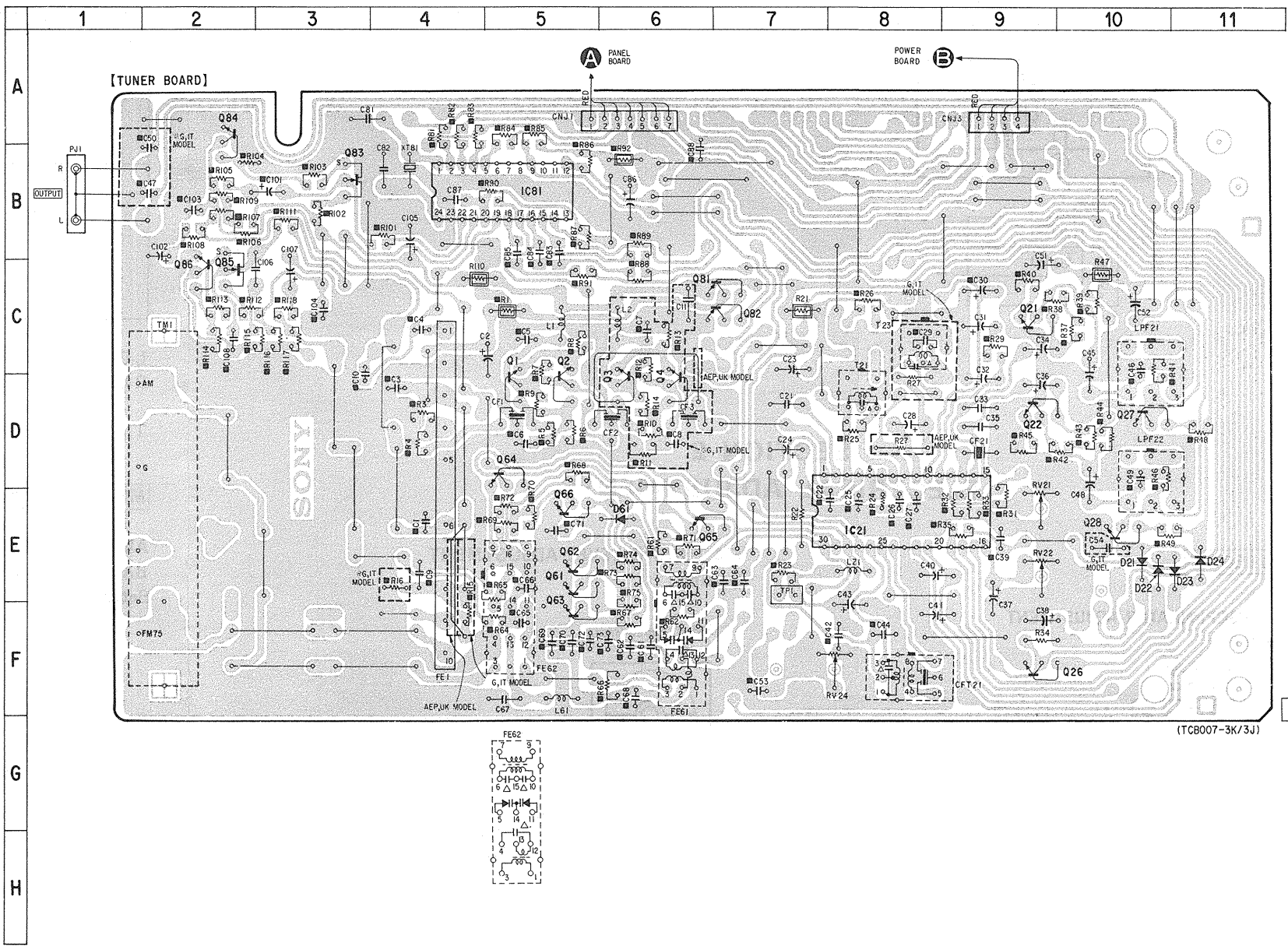
## IC701 LA5667







### 3-3. TUNER SECTION PRINTED WIRING BOARD



- SEMICONDUCTOR LOCATION

Ref. No.	Location
IC21	E-8
IC81	B-5
Q1	C-5
Q2	C-5
Q3	C-6
Q4	C-6
Q21	C-9
Q22	D-9
Q26	F-9
Q27	D-10
Q28	E-10
Q61	E-5
Q62	E-5
Q63	F-5
Q64	D-5
Q65	E-6
Q66	E-5
Q81	C-7
Q82	C-7
Q83	B-3
Q84	A-2
Q85	C-2
Q86	C-2
D21	E-10
D22	E-10
D23	E-11
D24	E-11
D61	E-6



- Note on Printed Wiring Board
-  : parts extracted from the component side.
-  : parts mounted on the conductor side.
-  indicates side identified with part number.
- G : Germany model
- IT : Italian model

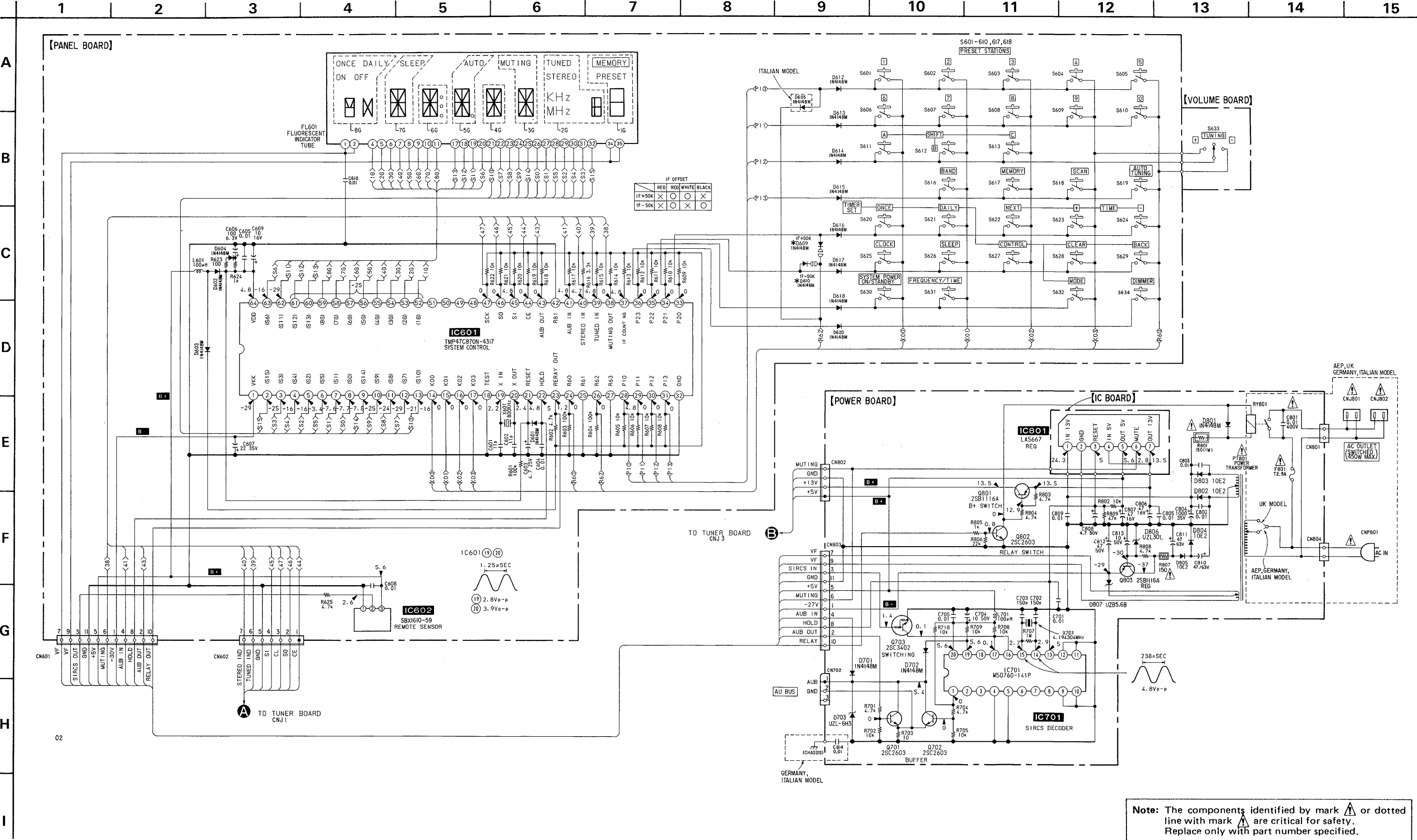
- Note on Schematic Diagram
- \*D609, D610 : See page 2 for Note on Ceramic Filter (CF1, 2, 3) ▲ Replacement.
- All capacitors are in  $\mu F$  unless otherwise noted. pF :  $\mu F$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- $\triangle$  : internal component.
-  : nonflammable resistor.
- **B+** : B+ Line
- **B-** : B- Line

-  : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
  - (     ) : AM
  - <     > : LW
- Voltages are taken with a VOM (input impedance 10M  $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  -  : FM
- G : Germany model
- IT : Italian model

7



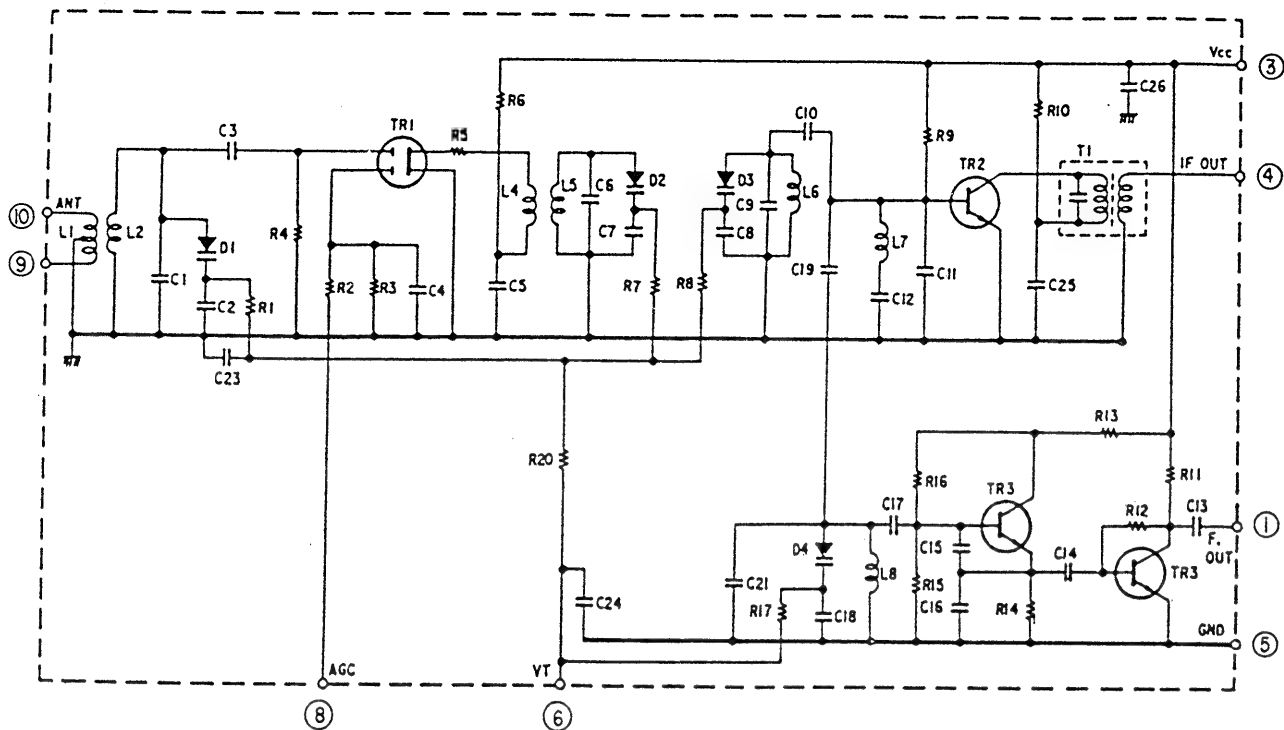
3-6. CONTROL AND POWER SUPPLY SECTION SCHEMATIC DIAGRAM • See page 6 for Notes.



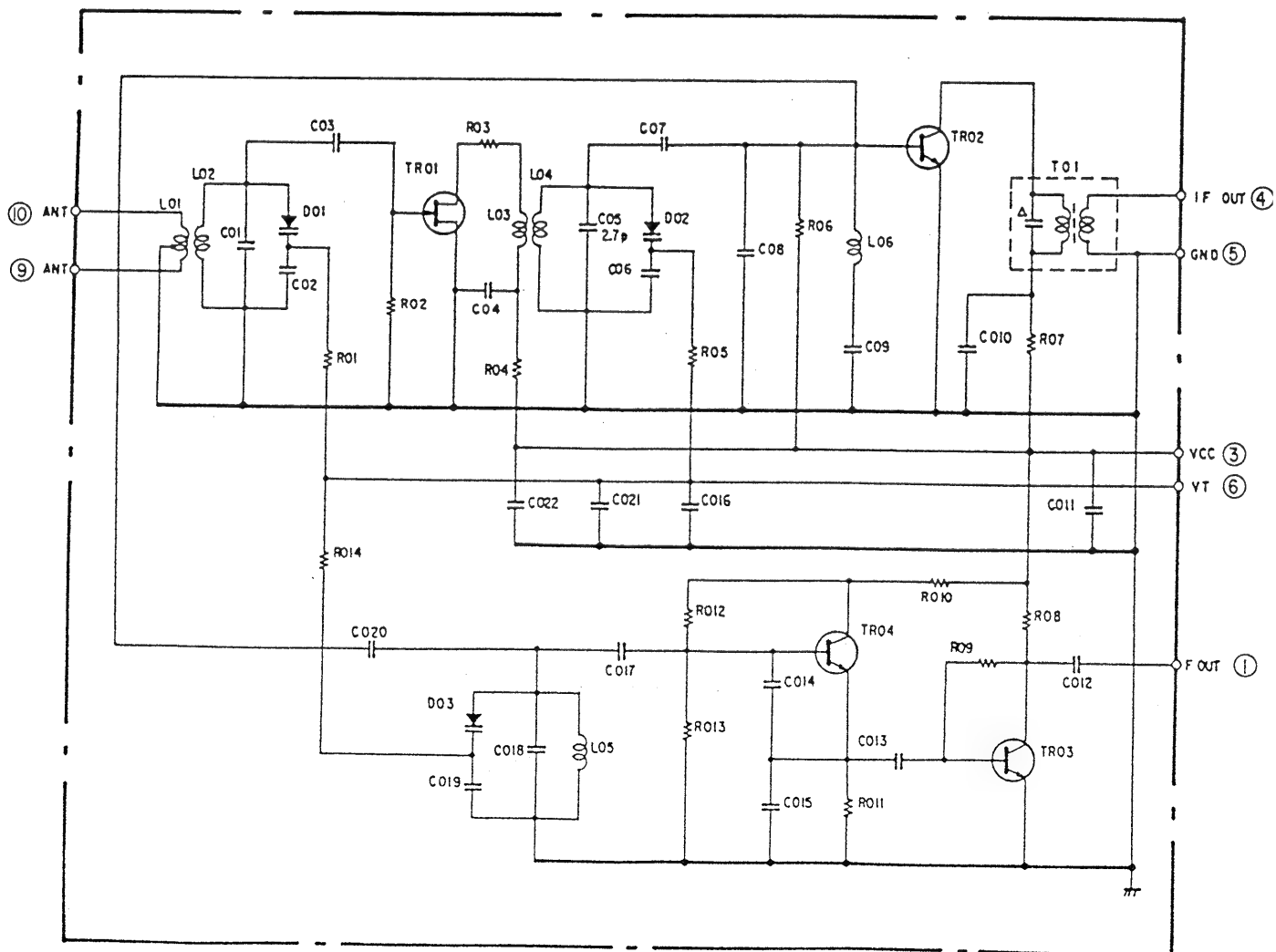


### 3-7. FM FRONT-END (FE1) SCHEMATIC DIAGRAMS

(Germany, Italian Model)



(AEP, UK Model)



## SECTION 4

### EXPLODED VIEW

#### NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color indication of Appearance Parts

Example:

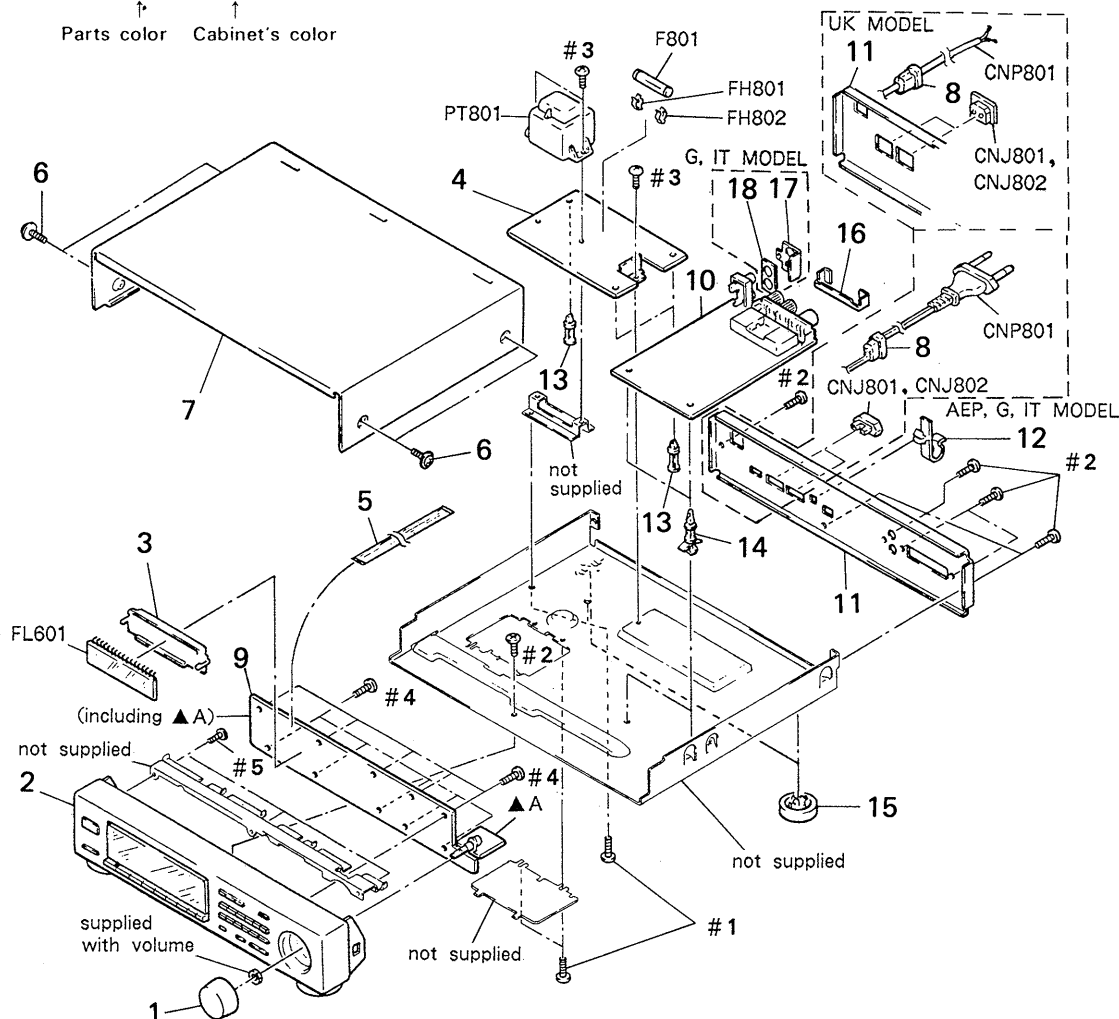
KNOB, BALANCE (WHITE)....(RED)

↑                      ↑  
Parts color    Cabinet's color

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware(#mark) list is given in the last of this parts list.

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

- G : Germany model
- IT : Italian model



Ref. No.	Part No.	Description	Remark
1	4-930-861-01	KNOB	
2	X-4941-494-1	PANEL ASSY, FRONT	
3	* 4-923-103-01	HOLDER, FL TUBE	
4	* A-4345-240-A	POWER BOARD, COMPLETE (AEP)	
4	* A-4345-241-A	POWER BOARD, COMPLETE (Germany, Italian)	
4	* A-4345-244-A	POWER BOARD, COMPLETE (UK)	
5	1-575-666-11	WIRE, FLAT TYPE (11 CORE)	
6	3-363-099-01	SCREW (CASE +3X8 TP2)	
7	* 4-919-389-01	CASE	
8	* 3-703-244-00	BUSHING (2104), CORD	
9	* A-4345-237-A	PANEL BOARD, COMPLETE (AEP)	
9	* A-4345-238-A	PANEL BOARD, COMPLETE (Germany)	
9	* A-4345-239-A	PANEL BOARD, COMPLETE (Italian)	
9	* A-4345-242-A	PANEL BOARD, COMPLETE (UK)	
10	1-589-204-11	PC BOARD, MOUNTED (AEP, UK)	
11	* 4-944-325-11	PANEL, BACK (AEP)	
11	* 4-944-325-21	PANEL, BACK (UK)	
11	* 4-944-325-31	PANEL, BACK (Germany)	
11	* 4-944-325-41	PANEL, BACK (Italian)	

Ref. No.	Part No.	Description	Remark
12	* 2-379-614-01	HOOK	
13	* 3-349-025-31	HOLDER, PC BOARD	
14	* 4-924-098-01	HOLDER, PC BOARD	
15	4-934-884-01	FOOT	
16	* 4-924-988-11	PLATE (ST), GROUND	
17	* 4-923-470-01	PLATE, SHIELD (Germany, Italian)	
18	* 4-930-855-01	SHEET (2P) (Germany, Italian)	
	CNJ801	1-526-751-00 OUTLET, AC (UK)	
	CNJ801	1-526-794-11 OUTLET, AC (AEP, Germany, Italian)	
	CNJ802	1-526-751-00 OUTLET, AC (UK)	
	CNJ802	1-526-794-11 OUTLET, AC (AEP, Germany, Italian)	
	CNP801	1-575-651-11 CORD, POWER (AEP, Germany, Italian)	
	CNP801	1-575-652-11 CORD, POWER (UK)	
	F801	1-532-286-00 FUSE, TIME-LAG (2.5A)	
	FH801	* 1-533-213-31 HOLDER, FUSE	
	FH802	* 1-533-213-31 HOLDER, FUSE	
	FL601	1-519-595-11 INDICATOR TUBE, FLUORESCENT	
	PT801	1-449-979-11 TRANSFORMER, POWER	





## TUNER

Ref.No.	Part No.	Description
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY
Q3	8-729-230-99	(G,IT)...TRANSISTOR 2SC2669-OY
Q4	8-729-230-99	(G,IT)...TRANSISTOR 2SC2669-OY
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q26	8-729-900-80	TRANSISTOR DTC114ES
Q27	8-729-620-05	TRANSISTOR 2SC2603-EF
Q28	8-729-620-05	TRANSISTOR 2SC2603-EF
Q61	8-729-900-80	TRANSISTOR DTC114ES
Q62	8-729-900-80	TRANSISTOR DTC114ES
Q63	8-729-900-80	TRANSISTOR DTC114ES
Q64	8-729-620-05	TRANSISTOR 2SC2603-EF
Q65	8-729-119-78	TRANSISTOR 2SA1175-HFE
Q66	8-729-900-80	TRANSISTOR DTC114ES
Q81	8-729-900-61	TRANSISTOR DTA114ES
Q82	8-729-900-80	TRANSISTOR DTC114ES
Q83	8-729-202-67	TRANSISTOR 2SK246-GR3
Q84	8-729-230-93	TRANSISTOR 2SC3113AB
Q85	8-729-202-67	TRANSISTOR 2SK246-GR3
Q86	8-729-230-93	TRANSISTOR 2SC3113AB
R1	△.1-249-397-11	(G,IT)....CARBON (SMALL)22 5% 1/4W F
R1	△.1-249-401-11	(AEP,UK)...CARBON (SMALL)47 5% 1/4W F
R3	1-249-329-11	CARBON MELF 330 5% 1/8W
R4	1-249-329-11	CARBON MELF 330 5% 1/8W
R5	1-249-329-11	CARBON MELF 330 5% 1/8W
R6	1-249-350-11	CARBON MELF 18K 5% 1/8W
R7	1-249-329-11	CARBON MELF 330 5% 1/8W
R8	1-249-332-11	CARBON MELF 560 5% 1/8W
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W
R10	1-249-329-11	(G,IT)...CARBON MELF 330 5% 1/8W
R11	1-249-350-11	(G,IT)...CARBON MELF 18K 5% 1/8W
R12	1-249-329-11	(G,IT)...CARBON MELF 330 5% 1/8W
R13	1-249-334-11	(G,IT)...CARBON MELF 820 5% 1/8W
R14	1-249-352-11	(G,IT)...CARBON MELF 27K 5% 1/8W
R15	1-249-347-11	(G,IT)...CARBON MELF 10K 5% 1/8W
R16	1-249-343-11	(G,IT)...CARBON MELF 4.7K 5% 1/8W
R21	△.1-249-404-00	CARBON (SMALL)82 5% 1/4W F
R22	△.1-249-430-11	CARBON (SMALL)12K 5% 1/4W F
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W
R25	1-249-346-11	CARBON MELF 8.2K 5% 1/8W
R26	1-249-340-11	(G,IT)...CARBON MELF 2.7K 5% 1/8W
R27	△.1-249-432-11	CARBON (SMALL)18K 5% 1/4W F
R29	1-249-347-11	CARBON MELF 10K 5% 1/8W
R31	1-249-331-11	CARBON MELF 470 5% 1/8W
R32	1-249-347-11	CARBON MELF 10K 5% 1/8W
R33	1-249-347-11	CARBON MELF 10K 5% 1/8W
R34	1-249-425-11	CARBON (SMALL)4.7K 5% 1/4W
R35	1-249-355-11	CARBON MELF 47K 5% 1/8W
R37	1-249-359-11	CARBON MELF 100K 5% 1/8W
R38	1-249-363-11	CARBON MELF 220K 5% 1/8W
R39	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R40	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
R41	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
R42	1-249-359-11	CARBON MELF 100K 5% 1/8W
R43	1-249-363-11	CARBON MELF 220K 5% 1/8W
R44	1-249-339-11	CARBON MELF 2.2K 5% 1/8W

Ref.No.	Part No.	Description
R45	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
R46	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
R47	△.1-249-409-11	CARBON (SMALL)220 5% 1/4W F
R48	1-249-359-11	CARBON MELF 100K 5% 1/8W
R49	1-249-359-11	CARBON MELF 100K 5% 1/8W
R61	1-249-359-11	CARBON MELF 100K 5% 1/8W
R62	1-249-355-11	CARBON MELF 47K 5% 1/8W
R64	1-249-351-11	CARBON MELF 22K 5% 1/8W
R65	1-249-355-11	CARBON MELF 47K 5% 1/8W
R66	1-215-493-00	CARBON MELF 1M 5% 1/5W
R67	1-249-359-11	CARBON MELF 100K 5% 1/8W
R68	1-249-352-11	CARBON MELF 27K 5% 1/8W
R69	1-249-351-11	CARBON MELF 22K 5% 1/8W
R70	1-249-331-11	CARBON MELF 470 5% 1/8W
R71	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R72	1-249-351-11	CARBON MELF 22K 5% 1/8W
R73	1-249-347-11	CARBON MELF 10K 5% 1/8W
R74	1-249-347-11	CARBON MELF 10K 5% 1/8W
R75	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R81	1-249-335-11	CARBON MELF 1K 5% 1/8W
R82	1-249-335-11	CARBON MELF 1K 5% 1/8W
R83	1-249-335-11	CARBON MELF 1K 5% 1/8W
R84	1-249-335-11	CARBON MELF 1K 5% 1/8W
R85	1-249-347-11	CARBON MELF 10K 5% 1/8W
R86	1-249-335-11	CARBON MELF 1K 5% 1/8W
R87	1-249-347-11	CARBON MELF 10K 5% 1/8W
R88	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R89	1-249-335-11	CARBON MELF 1K 5% 1/8W
R90	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R91	1-249-335-11	CARBON MELF 1K 5% 1/8W
R92	△.1-249-401-11	CARBON (SMALL)47 5% 1/4W F
R101	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R102	1-249-332-11	CARBON MELF 560 5% 1/8W
R103	1-249-335-11	CARBON MELF 1K 5% 1/8W
R104	1-249-328-11	CARBON MELF 270 5% 1/8W
R105	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R106	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R107	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R108	1-249-323-11	CARBON MELF 100 5% 1/8W
R109	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R110	△.1-249-405-11	CARBON (SMALL)100 5% 1/4W F
R111	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R112	1-249-332-11	CARBON MELF 560 5% 1/8W
R113	1-249-335-11	CARBON MELF 1K 5% 1/8W
R114	1-249-328-11	CARBON MELF 270 5% 1/8W
R115	1-249-351-11	CARBON MELF 22K 5% 1/8W
R116	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R117	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R118	1-249-323-11	CARBON MELF 100 5% 1/8W
RV21	1-238-013-11	(AEP,UK)...RES, ADJ, CARBON 2.2K
RV21	1-238-015-11	(G,IT).....RES, ADJ, CARBON 4.7K
RV22	1-238-017-11	RES, ADJ, CARBON 22K
RV24	1-238-017-11	(AEP,UK)...RES, ADJ, CARBON 22K
RV24	1-238-019-11	(G,IT).....RES, ADJ, CARBON 47K
T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR
T23	1-236-465-11	(G,IT)...ENCAPSULATED COMPONENT
TM1	*1-537-138-31	TERMINAL BOARD (ANT)(ANTENNA)
TP1	*1-560-060-00	PIN, CONNECTOR 2P
XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)

Note: The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

## • EXCEPT TUNER SECTION

PANEL

POWER



Ref. No.	Part No.	Description	Remark
		-----	-----
	* A-4345-237-A	PANEL BOARD, COMPLETE (AEP)	
		*****	
	* A-4345-238-A	PANEL BOARD, COMPLETE (Germany)	
		*****	
	* A-4345-239-A	PANEL BOARD, COMPLETE (Italian)	
		*****	
	* A-4345-240-A	POWER BOARD, COMPLETE (AEP)	
		*****	
	* A-4345-241-A	POWER BOARD, COMPLETE (Germany, Italian)	
		*****	
	* A-4345-242-A	PANEL BOARD, COMPLETE (UK)	
		*****	
	* A-4345-244-A	POWER BOARD, COMPLETE (UK)	
		*****	
	* 4-923-103-01	HOLDER, FL TUBE	
		< CAPACITOR >	
C601	1-162-200-31	CERAMIC 11PF 5% 50V	
C602	1-162-200-31	CERAMIC 11PF 5% 50V	
C603	1-126-163-11	ELECT 4.7uF 20% 50V	
C604	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C605	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C606	1-126-177-11	ELECT 100uF 20% 10V	
C607	1-123-357-00	ELECT 22uF 20% 35V	
C608	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C609	1-126-157-11	ELECT 10uF 20% 16V	
C610	1-101-004-00	CERAMIC 0.01uF 50V	
C701	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C702	1-162-284-31	CERAMIC 150PF 10% 50V	
C703	1-162-284-31	CERAMIC 150PF 10% 50V	
C704	1-124-907-11	ELECT 10uF 20% 50V	
C705	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C801	△ 1-161-744-00	CERAMIC 0.01uF 400V	
C802	1-101-004-00	CERAMIC 0.01uF 50V	
C803	1-101-004-00	CERAMIC 0.01uF 50V	

Ref. No.	Part No.	Description	Remark
		-----	-----
C804	1-126-105-11	ELECT 1000uF 20% 35V	
C805	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C806	1-124-477-11	ELECT 47uF 20% 25V	
C807	1-124-477-11	ELECT 47uF 20% 25V	
C808	1-126-163-11	ELECT 4.7uF 20% 50V	
C809	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C810	1-124-918-11	ELECT 47uF 20% 63V	
C811	1-124-918-11	ELECT 47uF 20% 63V	
C812	1-124-910-11	ELECT 47uF 20% 50V	
C813	1-124-907-11	ELECT 10uF 20% 50V	
C814	1-101-004-00	CERAMIC 0.01uF 50V	
		(Germany, Italian)	
		< CONNECTOR >	

CN601	* 1-568-854-11	SOCKET, CONNECTOR 11P
CN602	* 1-568-273-11	SOCKET, CONNECTOR 7P
CN702	* 1-565-561-11	PIN, CONNECTOR 3P
CN801	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P
CN802	* 1-568-308-11	SOCKET, CONNECTOR 4P
CN803	* 1-568-830-11	SOCKET, CONNECTOR 11P
CN804	* 1-564-321-00	PIN, CONNECTOR 2P

## &lt; DIODE &gt;

D601	8-719-912-20	DIODE 1SS120
D602	8-719-912-20	DIODE 1SS120
D603	8-719-912-20	DIODE 1SS120
D604	8-719-912-20	DIODE 1SS120
D605	8-719-912-20	DIODE 1SS120 (Italian)
D609	8-719-912-20	DIODE 1SS120
D612	8-719-912-20	DIODE 1SS120
D613	8-719-912-20	DIODE 1SS120
D614	8-719-912-20	DIODE 1SS120
D615	8-719-912-20	DIODE 1SS120

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

## PANEL

## POWER

Ref. No.	Part No.	Description	Remark
D616	8-719-912-20	DIODE 1SS120	
D617	8-719-912-20	DIODE 1SS120	
D618	8-719-912-20	DIODE 1SS120	
D620	8-719-912-20	DIODE 1SS120	
D701	8-719-912-20	DIODE 1SS120	
D702	8-719-912-20	DIODE 1SS120	
D703	8-719-933-41	DIODE HZS6C3L	
D801	8-719-912-20	DIODE 1SS120	
D802	8-719-200-77	DIODE 10E2N	
D803	8-719-200-77	DIODE 10E2N	
D804	8-719-200-77	DIODE 10E2N	
D805	8-719-200-77	DIODE 10E2N	
D806	8-719-934-22	DIODE HZS30-2L	
D807	8-719-014-66	DIODE UZP-5. 6B	
< FUSE >			
F801	△ 1-532-286-00	FUSE, TIME-LAG 2. 5A	
< HOLDER FUSE >			
FH801	* 1-533-213-31	HOLDER, FUSE	
FH802	* 1-533-213-31	HOLDER, FUSE	
< FLUORESCENT >			
FL601	1-519-595-11	INDICATOR TUBE, FLUORESCENT	
< IC >			
IC601	8-759-246-20	IC TMP47C870N-4317	
IC602	8-741-100-48	IC SBX1610-59	
IC701	8-759-634-73	IC M50760-141P	
IC801	8-759-820-09	IC LA5667	
< COIL >			
L601	1-410-521-11	INDUCTOR 100uH	
L701	1-410-521-11	INDUCTOR 100uH	
< TRANSFORMER >			
PT801	△ 1-449-979-11	TRANSFORMER, POWER	
< TRANSISTOR >			
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q702	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q703	8-729-900-80	TRANSISTOR DTC114ES	
Q801	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q803	8-729-140-04	TRANSISTOR 2SB1116A-L	

Ref. No.	Part No.	Description	Remark
< RESISTOR >			
R601	1-249-441-11	CARBON 100K 5%	1/4W
R602	1-249-425-11	CARBON 4. 7K 5%	1/4W
R603	1-249-441-11	CARBON 100K 5%	1/4W
R604	1-249-441-11	CARBON 100K 5%	1/4W
R605	1-249-429-11	CARBON 10K 5%	1/4W
R606	1-249-429-11	CARBON 10K 5%	1/4W
R607	1-249-429-11	CARBON 10K 5%	1/4W
R608	1-249-429-11	CARBON 10K 5%	1/4W
R609	1-249-429-11	CARBON 10K 5%	1/4W
R610	1-249-429-11	CARBON 10K 5%	1/4W
R611	1-249-429-11	CARBON 10K 5%	1/4W
R612	1-249-429-11	CARBON 10K 5%	1/4W
R613	1-249-429-11	CARBON 10K 5%	1/4W
R614	1-249-429-11	CARBON 10K 5%	1/4W
R615	1-249-429-11	CARBON 10K 5%	1/4W
R616	1-249-423-11	CARBON 3. 3K 5%	1/4W
R617	1-249-429-11	CARBON 10K 5%	1/4W
R618	1-249-429-11	CARBON 10K 5%	1/4W
R619	1-249-429-11	CARBON 10K 5%	1/4W
R620	1-249-429-11	CARBON 10K 5%	1/4W
R621	1-249-429-11	CARBON 10K 5%	1/4W
R622	1-249-429-11	CARBON 10K 5%	1/4W
R623	1-249-405-11	CARBON 100 5%	1/4W
R624	1-249-417-11	CARBON 1K 5%	1/4W
R625	1-249-425-11	CARBON 4. 7K 5%	1/4W
R701	1-249-425-11	CARBON 4. 7K 5%	1/4W
R702	1-249-429-11	CARBON 10K 5%	1/4W
R703	1-249-393-11	CARBON 10 5%	1/4W
R704	1-249-425-11	CARBON 4. 7K 5%	1/4W
R705	1-249-429-11	CARBON 10K 5%	1/4W
R707	1-247-903-00	CARBON 1M 5%	1/4W
R708	1-249-429-11	CARBON 10K 5%	1/4W
R709	1-249-429-11	CARBON 10K 5%	1/4W
R710	1-249-429-11	CARBON 10K 5%	1/4W
R801	△ 1-215-864-00	METAL OXIDE 150 5%	1W F
R802	1-249-429-11	CARBON 10K 5%	1/4W
R803	1-249-425-11	CARBON 4. 7K 5%	1/4W
R804	1-249-425-11	CARBON 4. 7K 5%	1/4W
R805	1-249-417-11	CARBON 1K 5%	1/4W
R806	1-249-433-11	CARBON 22K 5%	1/4W
R807	△ 1-247-702-11	CARBON 150 5%	1/4W F
R808	1-249-425-11	CARBON 4. 7K 5%	1/4W
R809	1-249-437-11	CARBON 47K 5%	1/4W
< RELAY >			
RY801	1-515-617-11	RELAY	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

**PANEL****POWER**

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S601	1-554-303-21	SWITCH, TACTILE ( 1 )	
S602	1-554-303-21	SWITCH, TACTILE ( 2 )	
S603	1-554-303-21	SWITCH, TACTILE ( 3 )	
S604	1-554-303-21	SWITCH, TACTILE ( 4 )	
S605	1-554-303-21	SWITCH, TACTILE ( 5 )	
S606	1-554-303-21	SWITCH, TACTILE ( 6 )	
S607	1-554-303-21	SWITCH, TACTILE ( 7 )	
S608	1-554-303-21	SWITCH, TACTILE ( 8 )	
S609	1-554-303-21	SWITCH, TACTILE ( 9 )	
S610	1-554-303-21	SWITCH, TACTILE ( 0 )	
S611	1-554-303-21	SWITCH, TACTILE (A-SHIFT)	
S612	1-554-303-21	SWITCH, TACTILE (B-SHIFT)	
S613	1-554-303-21	SWITCH, TACTILE (C-SHIFT)	
S616	1-554-303-21	SWITCH, TACTILE (BAND)	
S617	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S618	1-554-303-21	SWITCH, TACTILE (SCAN)	
S619	1-554-303-21	SWITCH, TACTILE (AUTO)	
S620	1-554-303-21	SWITCH, TACTILE (ONCE)	
S621	1-554-303-21	SWITCH, TACTILE (DAILY)	
S622	1-554-303-21	SWITCH, TACTILE (NEXT)	
S623	1-554-303-21	SWITCH, TACTILE (TIME +)	
S624	1-554-303-21	SWITCH, TACTILE (TIME -)	
S625	1-554-303-21	SWITCH, TACTILE (CLOCK)	
S626	1-554-303-21	SWITCH, TACTILE (SLEEP)	
S627	1-554-303-21	SWITCH, TACTILE (CONTROL)	
S628	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S629	1-554-303-21	SWITCH, TACTILE (BACK)	
S630	1-554-303-21	SWITCH, TACTILE (SYSTEM POWER)	
S631	1-554-303-21	SWITCH, TACTILE (FREQUENCY/TIME)	
S632	1-554-303-21	SWITCH, TACTILE (MODE)	
S633	1-571-955-11	SWITCH, ROTARY (TUNING +/-)	
S634	1-554-303-21	SWITCH, TACTILE (DIMMER)	
		< CRYSTAL >	
X601	1-567-821-21	VIBRATOR, CRYSTAL (800kHz)	
X701	1-578-699-11	OSCILLATOR, CERAMIC (4.194304MHz)	

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
5	1-575-666-11	WIRE, FLAT TYPE (11 CORE)	
10	1-589-204-11	PC BOARD, MOUNTED (AEP, UK)	
CNJ801	1-526-751-00	OUTLET, AC (UK)	
CNJ801	1-526-794-11	OUTLET, AC (AEP, Germany, Italian)	
CNJ802	1-526-751-00	OUTLET, AC (UK)	
CNJ802	1-526-794-11	OUTLET, AC (AEP, Germany, Italian)	
CNP801	△ 1-575-651-11	CORD, POWER (AEP, Germany, Italian)	
CNP801	△ 1-575-652-11	CORD, POWER (UK)	
F801	△ 1-532-286-00	FUSE, TIME-LAG (2.5A)	
		*****	
		ACCESSORY & PACKING MATERIAL *****	
	1-465-774-11	REMOTE COMMANDER (RM-S905) (AEP, Germany, Italian)	
	1-501-369-11	ANTENNA (AEP, Germany, Italian)	
	1-501-374-11	ANTENNA, LOOP (AEP, Germany, Italian)	
	1-558-271-11	CORD, CONNECTION (AEP, Germany, Italian)	
	1-559-533-11	CORD, CONNECTION (AEP, Germany, Italian)	
	1-575-832-11	CORD (WITH CONNECTOR) (AEP, Germany, Italian)	
	3-753-429-11	MANUAL, INSTRUCTION (AEP) (English, French, Spanish, Portuguese)	
	3-753-429-41	MANUAL, INSTRUCTION (AEP, Germany, Italian) (German, Dutch, Swedish, Italian)	
	* 4-934-860-01	CUSHION	
	* 4-946-090-01	INDIVIDUAL CARTON (AEP, Germany, Italian)	
		*****	
		<b>HARDWARE LIST</b> *****	
# 1	7-682-548-09	SCREW +BVT 3X8 (S)	
# 2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
# 3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
# 4	7-621-773-93	SCREW (PANEL 2.6 TP2)	
# 5	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.



# TA-D905

## SERVICE MANUAL

AEP Model  
UK Model  
E Model



This set is a integrated stereo Amplifier  
Block of the following models.  
LBT-D905CD

### SPECIFICATIONS

#### Continuous RMS power output

95 W + 95 W  
(6 ohms, at 1 kHz, 5% THD)

80 W + 80 W  
(6 ohms, at 1 kHz, DIN)

Music power output 160 W + 160 W  
(6 ohms, at 1 kHz)

#### Audio section

##### Input

INPUT	Jack type	Sensitivity	Impedance
PHONO	Phono	2.8 mV	47 kohms
TUNER	Phono	220 mV	47 kohms
TAPE	Phono	220 mV	47 kohms
VIDEO1	Phono	220 mV	47 kohms
VIDEO2	Phono	220 mV	47 kohms
VIDEO3	Phono	220 mV	47 kohms
SDP	Phono	200 mV	47 kohms
MIC	Phono	0.7 mV	10 kohms

\* At 80 W + 80 W output  
With SDP IN and SDP OUT short-circuited

##### Output

OUTPUT	Jack type	Sensitivity	Impedance
TAPE	Phono	200 mV	2 kohms
DAT	Phono	200 mV	2 kohms
VIDEO1	Phono	200 mV	2 kohms
VIDEO2	Phono	200 mV	2 kohms
SDP	Phono	200 mV	2 kohms
SURROUND SPEAKER	Accepts speakers of 16 ohms		
HEADPHONES	Accepts headphones of 8 ohms or more		

#### Video section

##### Inputs

VIDEO1, VIDEO2, VIDEO3,  
DBS: 1 Vp-p, 75 ohms

##### Outputs

VIDEO1, VIDEO2,  
MONITOR: 1 Vp-p, 75 ohms

#### Frequency response

PHONO  
VIDEO1  
VIDEO2  
VIDEO3  
SDP  
TUNER  
TAPE  
MIC

RIAA curve  $\pm 0.5$  dB

10 Hz to 50 kHz  $+0$   $-3$  dB

100 Hz to 10 kHz  $+0$   $-6$  dB

#### General

Power requirements 120/220/240, 50/60Hz (E, Saudi Arabia models)  
240V AC, 50/60Hz (UK model)  
220 - 230V AC, 50/60Hz (AEP, Germany, Italian models)  
Power consumption 230W (E, Saudi Arabia models)  
400W (UK model)  
200W (AEP, Germany, Italian models)  
AC outlet 1 unswitched, 100 W max.  
Dimensions Approx. 355 × 132.5 × 325 mm (w/h/d)  
incl. projecting parts and controls  
Weight Approx. 6.9 kg

Design and specifications subject to change without notice.

INTEGRATED STEREO AMPLIFIER  
**SONY®**

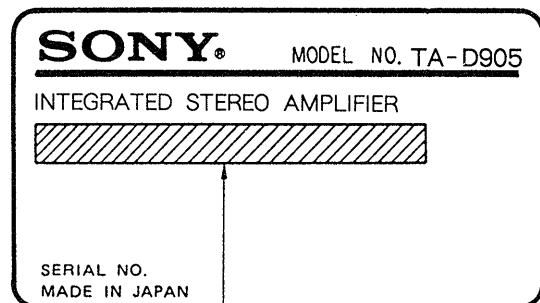


## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1. GENERAL</b>		3
<b>2. DIAGRAMS</b>		
2-1.	Block Diagram	9
2-2.	IC Description	11
2-3.	Circuit Boards Location	12
2-4.	IC Block Diagrams	13
2-5.	Semiconductor Lead Layouts	16
2-6.	Printed Wiring Board - Main -	17
2-7.	Schematic Diagram - Main -	21
2-8.	Schematic Diagram - Panel -	25
2-9.	Printed Wiring Board - Panel -	29
<b>3. EXPLODED VIEWS</b>		
3-1.	Overall Section 1	31
3-2.	Overall Section 2	32
<b>4. ELECTRICAL PARTS LIST</b>		33

### MODEL IDENTIFICATION

— Specification Label —



UK model : AC240V  $\sim$  50/60Hz

AEP, Germany, Italian models : AC220 - 230V  $\sim$  50/60Hz

E, Saudi Arabia models : AC120/220/240  $\sim$  50/60Hz

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

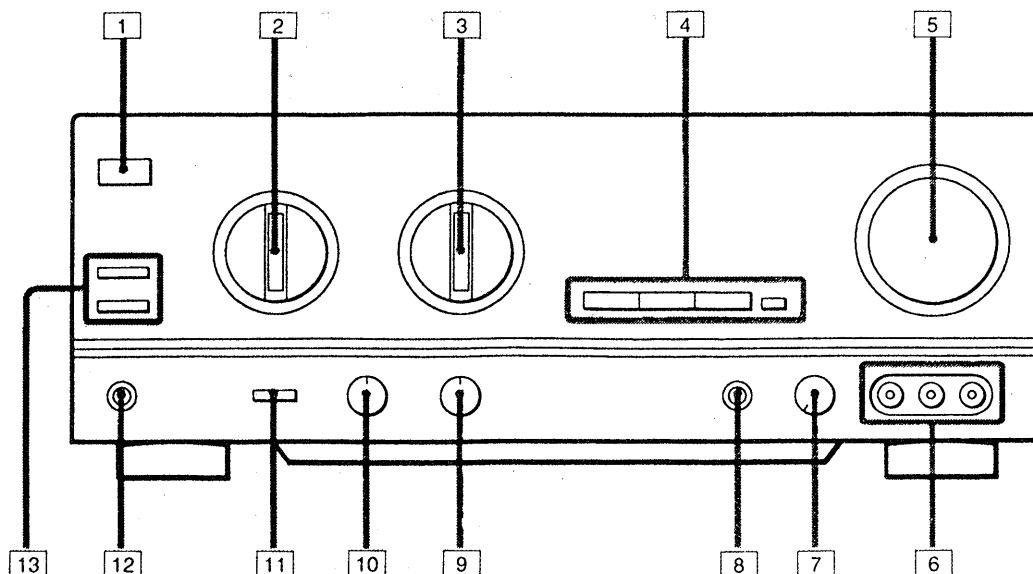
## SECTION 1 GENERAL

This section is extracted from instruction manual.

### Location of Controls

Front Panel

Panneau frontal



Refer to the pages indicated in ● for details.

#### Amplifier

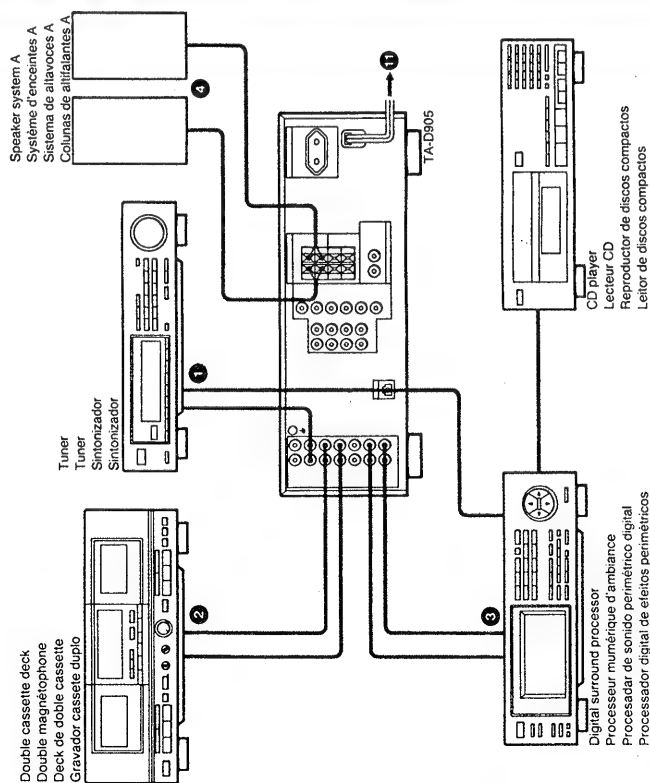
- 1 POWER switch
- 2 VIDEO FUNCTION selector ● 26
- 3 AUDIO FUNCTION selector ● 16
- 4 Buttons for storing sound quality settings (PROGRAM FUNCTION) ● 23
- 5 VOLUME control ● 18
- 6 VIDEO3 input jacks
- 7 MIC LEVEL control ● 28, ● 29
- 8 MIC jack ● 28
- 9 BALANCE control ● 18
- 10 DBFB LEVEL control ● 20
- 11 DBFB button ● 20
- 12 HEADPHONES jack ● 20
- 13 SPEAKERS A/B selectors ● 20

## Installation

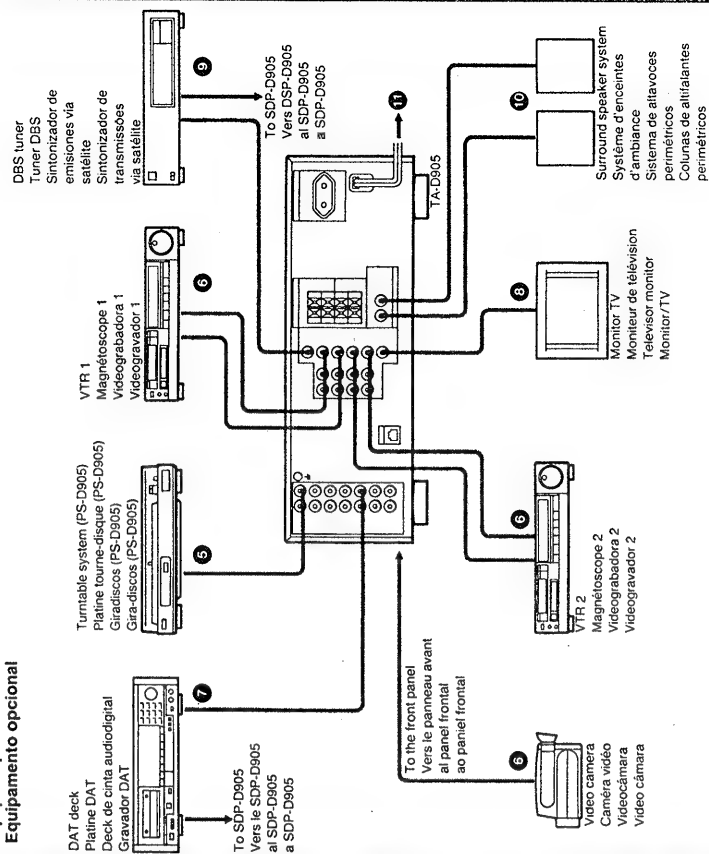
### Notes on Connection

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for left channel (L).
- Fully insert cable connectors into jacks. Loose connections may cause hum or noise.
- No audio or video connecting cords are supplied with this unit. They are supplied with other components.

### Basic connections Connexions de base Conexões básicas



### Optional equipment Appareil en option Equipos opcionales Equipamento opcional

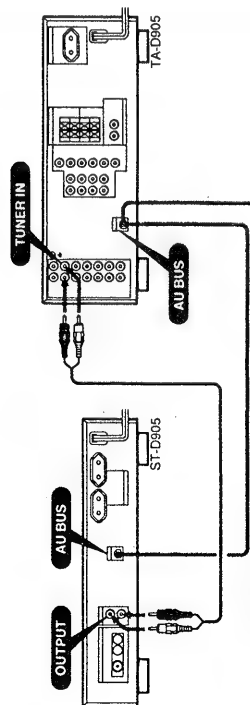


## Installation

1

Connecting a tuner

Connexion d'une tuner  
 Conexión de un sintonizador  
 Ligação de um sintonizador



AU BUS connector supplied with ST-D905  
 Connecteur AU BUS (fourni avec le ST-D905)  
 Conector AU BUS (suministrado con el ST-D905)  
 Conector AU BUS (fornecido com o ST-D905)

This connection allows you to control this unit with the remote commander supplied with ST-D905. It also enables automatic function selection of connected components.

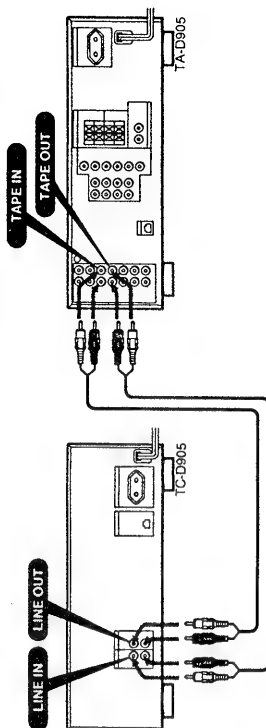
Cette connexion permet de faire fonctionner l'appareil à l'aide de la télécommande fournie avec le ST-D905. Elle permet également la sélection automatique des composants raccordés.

Esta conexão le permitirá controlar esta unidad con el telecomando suministrado con el ST-D905. También permite la selección automática de función de los componentes conectados.

Esta ligação permite a controle do aparelho com o telecomando fornecido com o ST-D905. Esta ligação permite também a seleção automática de funções nos componentes ligados.

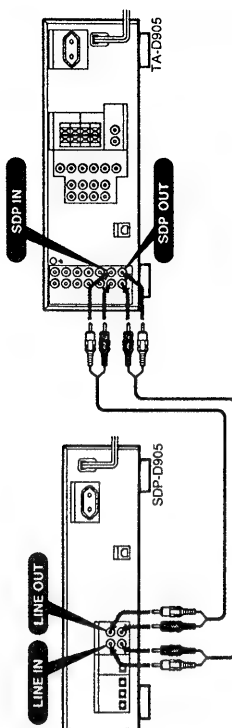
2

Connecting a double cassette deck  
 Connexion d'un double magnétophone  
 Conexión de un deck de doble cassette  
 Ligação de um gravador cassete duplo



3

Connecting a digital surround processor  
 Connexion d'un processeur numérique d'ambiance  
 Conexión de un procesador de sonido perimétrico digital  
 Ligação de um processador digital de efeitos perimétricos



## Installation

### A Connecting a DAT deck

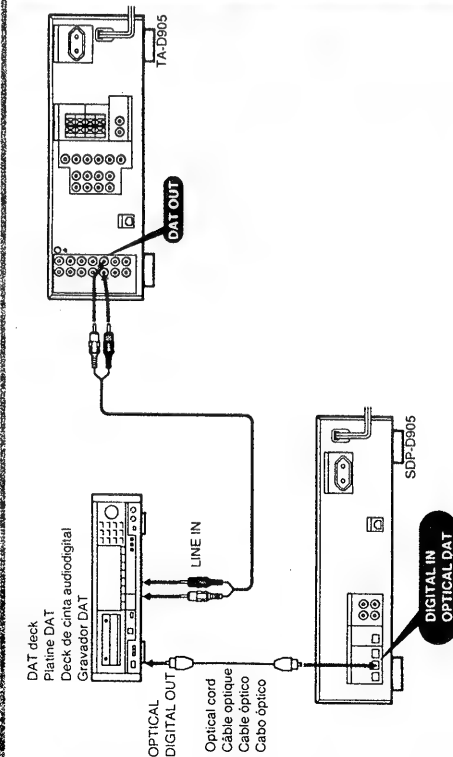
Connexion d'une platine DAT munie d'une sortie numérique optique  
Conexión de un deck de cinta audiodigital  
Ligação de um gravador DAT

A DAT deck can be connected in 3 ways. When connecting a DAT, use only one of the following connections.

Une platine DAT peut être connectée de 3 manières différentes, mais les connexions doivent être effectuées selon un des systèmes suivant uniquement.

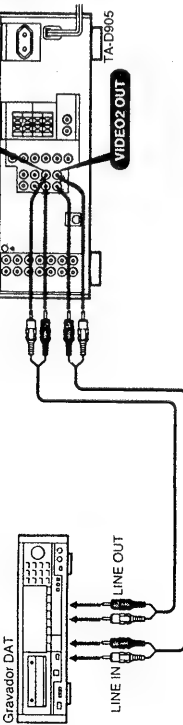
Usted podrá conectar un deck de cinta audiodigital de 3 formas. Cuando lo conecte, emplee solamente una de estas formas.

A ligação de um gravador DAT pode ser realizada de três maneiras. Utilize um dos seguintes modos para a ligação.



### B

DAT deck  
Platine DAT  
Deck de cinta audiodigital  
Gravador DAT



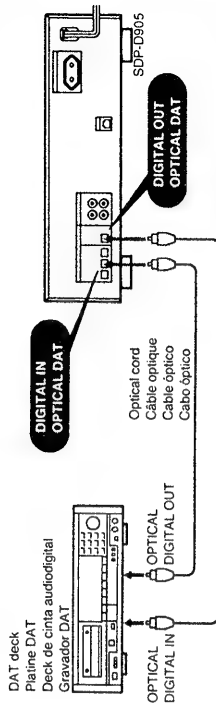
\*When playing back a DAT tape, select VEDEQ2 with the AUDIO FUNCTION selector

\*Lors de la lecture d'une cassette DAT, sélectionner VEDEQ2 avec le sélecteur AUDIO FUNCTION.

\*Para reproducir un cassette de cinta audio digital, elija VEDEQ2 con el selector AUDIO FUNCTION.

\*Quando da reprodução de uma cassette no gravador DAT, posicione o selector AUDIO FUNCTION em VIDEO2.

### C



#### Feature of these above connections

• Is the digital recording possible?

Yes: ☐ No: ☐

☐ connection enables you to record digital sound from a CD or DBS tuner connected with an optical cord without digital-analog conversion.

Thus, this connection allows you to have your recording free of any deterioration in sound quality resulting from digital-analog conversion.

• Can the digital surround processor effects be recorded?

Yes: ☐ No: ☐

#### Particularidades de estas conexiones

• ¿Es posible la grabación digital?

Si: ☐ No: ☐

La conexión ☐ le permitirá grabar sonido digital de un reproductor de discos compactos o de un receptor de emisiones vía satélite conectado con un cable óptico sin conversión digital-analógica. Por ello, esta conexión hará que pueda grabar sin que la calidad del sonido se vea deteriorada debido a la conversión digital-analógica.

• ¿Es posible grabar los efectos del procesador de sonido perimétrico digital?

Si: ☐ No: ☐

#### Características das ligações acima

• É possível realizar gravações digitais?

Sim: ☐ Não: ☐

A ligação ☐ permite a gravação dos sinais digitais de um disco compacto ou sintonizador de transmissões via satélite ligado através de um cabo óptico, sem conversão digital-analógica.

Esta ligação possibilita desta forma a obtenção de gravações livres de qualquer degradação na qualidade sonora resultante da conversão digital-analógica.

• Os efeitos do processador digital de efeitos perimétricos podem ser gravados?

Sim: ☐ Não: ☐

#### Caractéristiques des connexions indiquées ci-dessus

• L'enregistrement numérique est-il possible?

Oui: ☐ Non: ☐

La connexion ☐ permet d'enregistrer le son numérique d'un lecteur de CD ou d'un tuner DBS raccordés par un câble optique sans avoir à faire la conversion numérique-analogique.

Aussi, cette connexion vous permet-elle d'effectuer des enregistrements ne souffrant pas de détériorations provenant de la conversion du signal numérique en signal analogique.

• Les effets créés par le processeur numérique d'ambiance peuvent-ils être enregistrés?

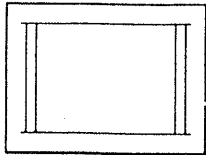
Oui: ☐ Non: ☐

# Installation

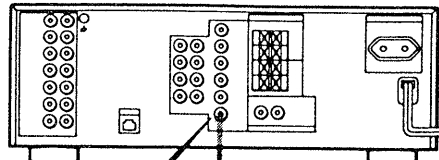
## 8 Connecting a monitor TV Connexion d'un moniteur de télévision

Conexión de un televisor monitor  
Ligação de um monitor/TV

Monitor TV  
Moniteur de télévision  
Televisor monitor  
Monitor/TV



VIDEO IN



MONITOR OUT

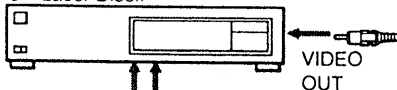
TA-D905

## 9 Connecting a DBS tuner or a Laser Disc player Connexion d'un tuner DBS ou d'un lecteur de LD

Conexión de un sintonizador de emisiones vía satélite o de un reproductor de discos láser  
Ligação de um sintonizador de transmissões via satélite ou leitor de disco laser «Laser Disc»

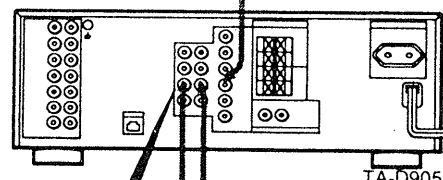
### a For the equipment without an optical output/Pour appareil sans sortie optique/Para un equipo desprovisto de saída óptica/Equipamentos desprovidos de saída óptica

DBS tuner or Laser Disc player  
Tuner DBS ou lecteur de LD  
Sintonizador de emisiones vía satélite o reproductor de discos láser  
Sintonizador de transmissões via satélite ou o «Laser Disc»



VIDEO OUT

AUDIO OUT

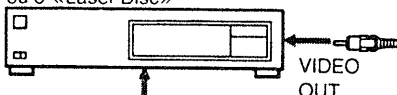


VIDEO2 IN

TA-D905

### b For the equipment with an optical output/Pour appareil avec sortie optique/Para equipos provistos de saída óptica/Equipamentos providos de saída óptica

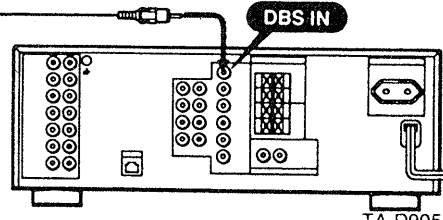
DBS tuner or Laser Disc player  
Tuner DBS ou lecteur de LD  
Sintonizador de emisiones vía satélite o reproductor de discos láser  
Sintonizador de transmissões via satélite ou o «Laser Disc»



VIDEO OUT

OPTICAL DIGITAL OUT

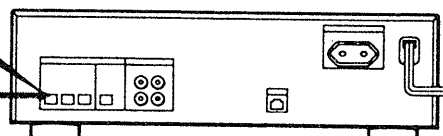
Optical cord  
Câble optique  
Cabo óptico  
Cabo óptico



DBS IN

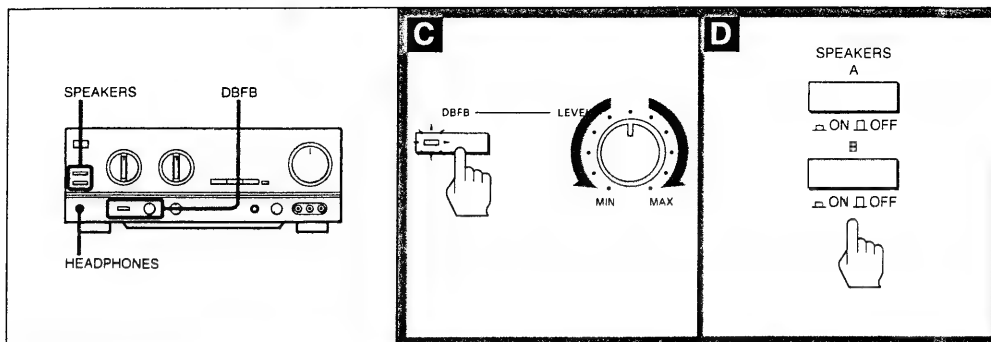
TA-D905

DIGITAL IN  
OPTICAL DBS



SDP-D905

## Adjusting the Sound



### Reinforcing the Bass

- 1 Press the DBFB button so that the indicator lights up.
- 2 Adjust the DBFB LEVEL control.

### Selecting Speaker System

This amplifier provides for two speaker systems – system A and system B – which can be selected separately or simultaneously using the SPEAKERS selectors.

To drive speaker system A: Depress A.  
To drive speaker system B: Depress B.  
To drive both speaker systems A and B: Depress both A and B.

For private listening: Connect a pair of headphones to HEADPHONES and set both selectors to OFF (Δ).

• Speaker systems A and B are series connected. No sound can be heard if both SPEAKERS selectors are pressed when only one speaker system is connected.

## Storing a Desired Sound Setting

You can store and recall 3 different combinations of program source, volume level, and sound quality.  
Store the settings in the PROGRAM FUNCTION buttons 1 to 3 on the amplifier.

1. Press the POWER button (ON).

2. Adjust the VOLUME control.

3. Set the sound quality using the digital surround processor.

4. Store the setting using the PROGRAM FUNCTION buttons.

- Select a source and play it.  
Sélectionner une source et la reproduire.  
Seleccione una fuente y póngala en reproducción.  
Selecione una fonte e a execute.
- Adjust to the desired volume level.  
Régler le niveau de volume souhaité.  
Ajuste el nivel de volumen deseado.  
Ajuste o nível de volume desejado.
- Set to the desired sound quality by using the digital surround processor.  
Régler la qualité du son souhaité avec le processeur numérique d'ambiance.  
Ajuste la cualidad de sonido deseada empleando el procesador de sonido perimétrico digital.  
Ajuste a qualidade sonora desejada com o processador digital de efeitos perimétricos.
- Store the setting.  
Mémoriser le réglage.  
Almacene el ajuste.  
Armazene o ajuste.

### Recalling a Sound Setting

Prepare the source and press the button for the desired setting.

#### Note on step 1

If you select the tuner ST-D905 as a source, the band and frequency of the station tuned in will be stored.

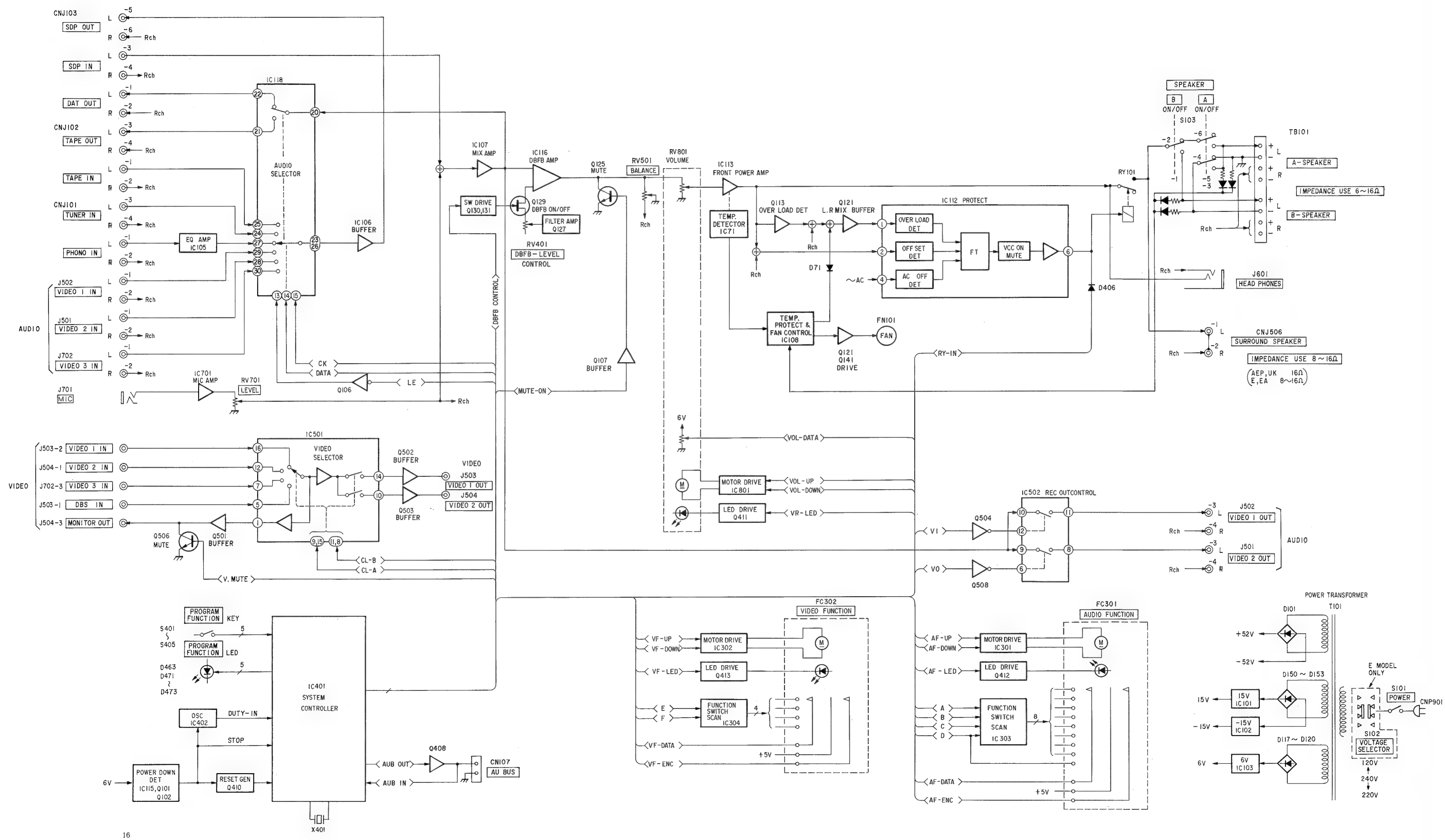
#### Notes on steps 2

- Adjust the VOLUME control within such a range that the volume level will not exceed half of the maximum volume.
- Be sure to set the VOLUME control to the position more than the second point from the minimum level. Otherwise, the stored setting will be recognized as the zero level.



SECTION 2  
DIAGRAMS

2-1. BLOCK DIAGRAM



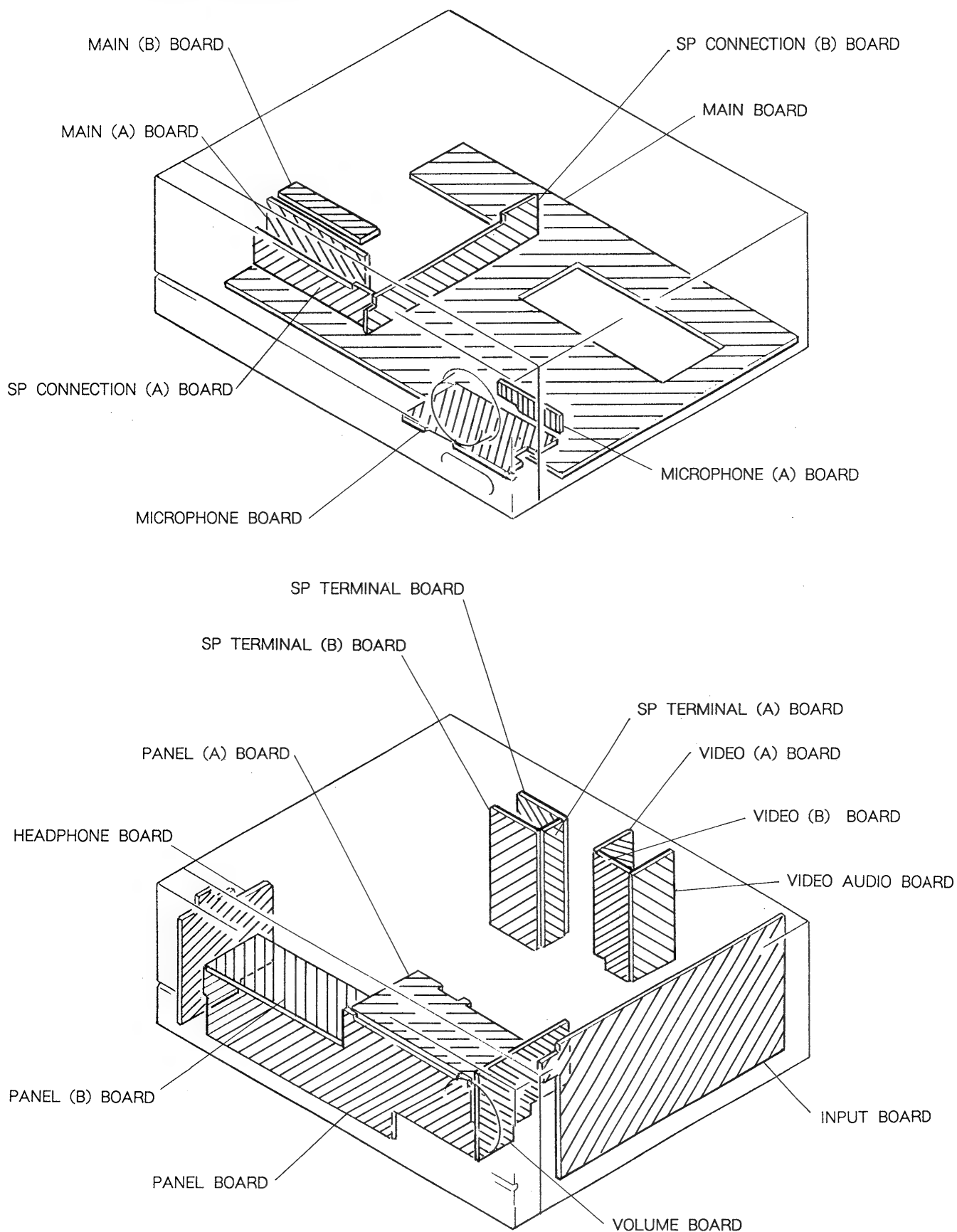
## 2-2. IC DESCRIPTION

IC401 System Controller (μ PD75106CW-190)

Pin No.	Pin Name	I/O	Description
1	V-ENC	I	Select edge input of video function switch (FC302).
2	A-ENC	I	Select edge input of audio function switch (FC301).
3	DUTY-IN	I	Pulse input (sync T = approx. 20 mS) of function motor control.
4	AUB-IN	I	Audio BUS input.
5	NC	—	
6	NC	—	
7	RY-IN	I	Relay (RY101) ON/OFF detect.
8	VOL A/D	I	Position detect input (analog input) of volume (RV801).
9	TST	—	
10	TST	—	
11	AUB-OUT	O	Audio BUS output.
12	NC	—	
13	NC	—	
14	NC	—	
15	SI	—	
16	V-LOC	I	Position data scan input of video function switch (FC302).
17	A-LOC	I	Position data scan input of audio function switch (FC301).
18	AC-CUT	I	Power cut detect input.
19	A-MUTE	O	Mute signal output (audio).
20	V-MUTE	O	Mute signal output (video).
21	NC	—	
22	REAR-SP	O	Rear speaker relay (RY901) ON/OFF control output.
23	CL-B	O	Video image input/output select control output (IC501).
24	CL-A	O	
25	V1	O	Video audio input/output select control output (IC502).
26	V0	O	
27	SW-OFF	O	Super woofer ON/OFF control output.
28	CE	O	Audio input/output select (IC118) data latch output.
29	DI	O	Audio input/output select (IC118) serial data output.
30	CL	O	Audio input/output select (IC118) data clock output.
31	NC	—	
32	VDD	—	Power terminal (+5V).

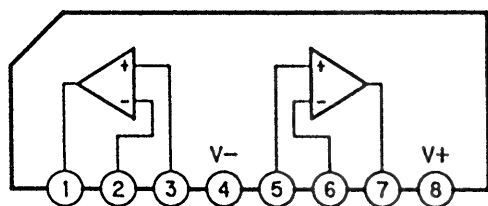
Pin No.	Pin Name	I/O	Description
33	AF-LED	O	Audio function LED control output.
34	REAR-K	I	Rear speaker ON/OFF switch (S407) input.
35	SW-K	I	Super woofer ON/OFF switch (S406) input.
36	DBFB-K	I	DBFB-K ON/OFF switch (S405) input.
37	PST1-K	I	PRESET 1 switch (S402) input.
38	PST2-K	I	PRESET 2 switch (S403) input.
39	PST-3K	I	PRESET 3 switch (S404) input.
40	SET-K	I	SET switch (S401) input.
41	A-SCN-3	O	Position data scan output of audio function switch.
42	A-SCN-2	O	
43	A-SCN-1	O	
44	A-SCN-0	O	
45	RESET	I	System reset input.
46	X0	O	Ceramic oscillator generator circuit (4.19 MHz).
47	X1	I	
48	VOL-DWN	O	DOWN signal output of volume motor (RV801).
49	VOL-UP	O	UP signal output of volume motor (RV801).
50	V-SCAN-1	O	Position data scan output of video function switch.
51	V-SCAN-0	O	
52	VF-LED	O	Video function LED control output.
53	PST1-L	O	PRESET LED (D471) control output.
54	PST2-L	O	PRESET LED (D472) control output.
55	PST3-L	O	PRESET LED (D473) control output.
56	AF-DWN	O	Motor DOWN signal output of audio function switch (FC301).
57	AF-UP	O	Motor UP signal output of audio function switch (FC301).
58	VF-DWN	O	Motor DOWN signal output of video function switch (FC302).
59	VF-UP	O	Motor UP signal output of video function switch (FC302).
60	REAR-L	O	Rear speaker LED (D461) control output.
61	SW-L	O	Super woofer LED (D462) control output.
62	VOL-L	O	Volume LED control output.
63	DBFB-L	O	DBFB LED (D463) control output.
64	VSS	—	GN

## 2-3. CIRCUIT BOARDS LOCATION

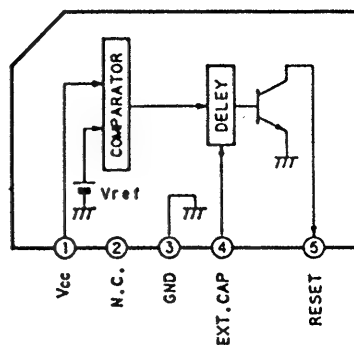


## 2-4. IC BLOCK DIAGRAM

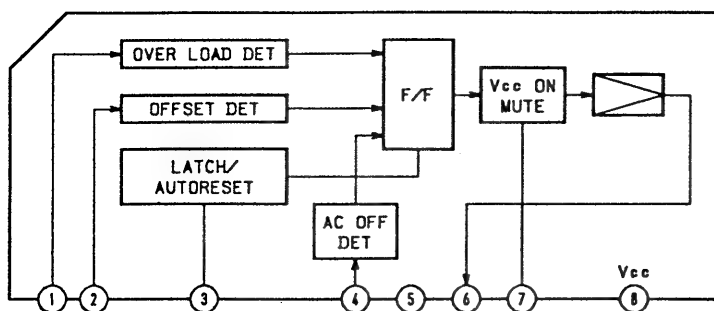
IC105-107, 116, 701 M5218AL



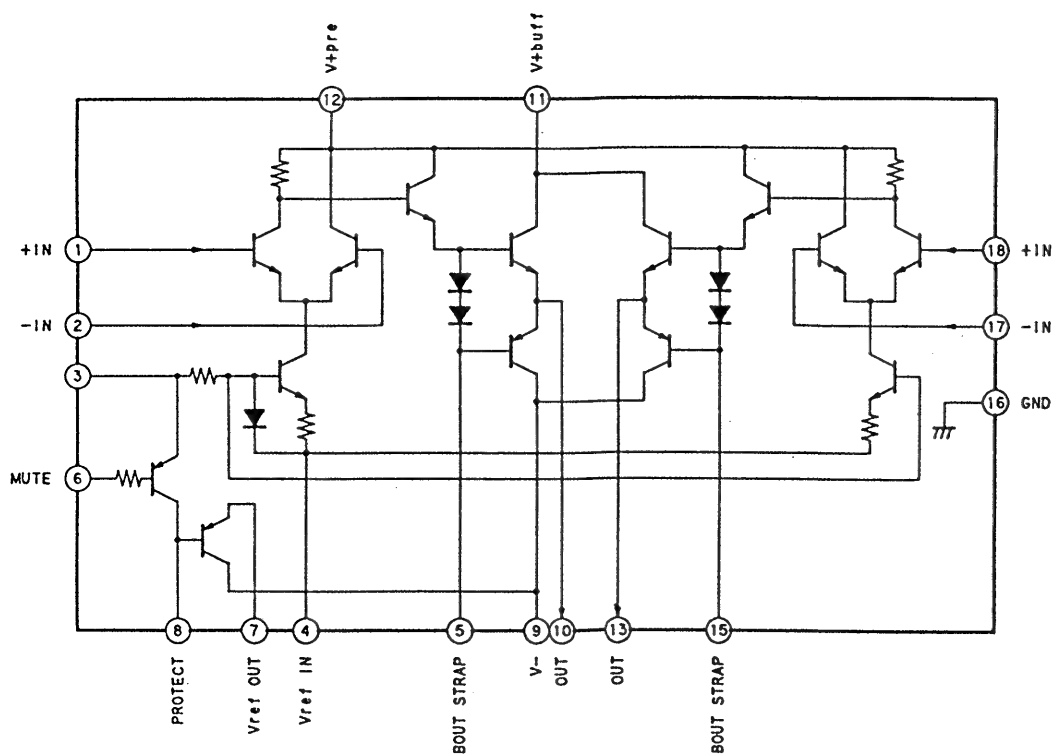
IC115 M51953BL



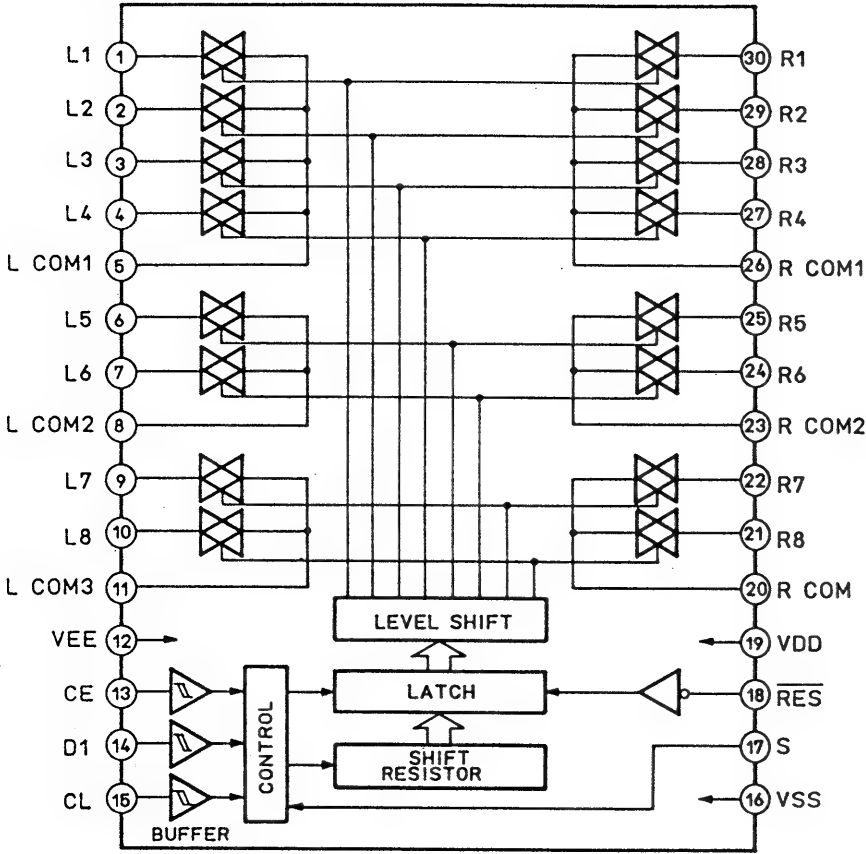
IC112  $\mu$  PC1237HA



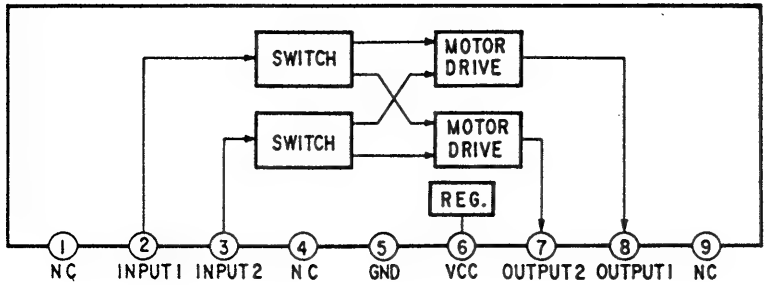
IC113 STK-4211MK2



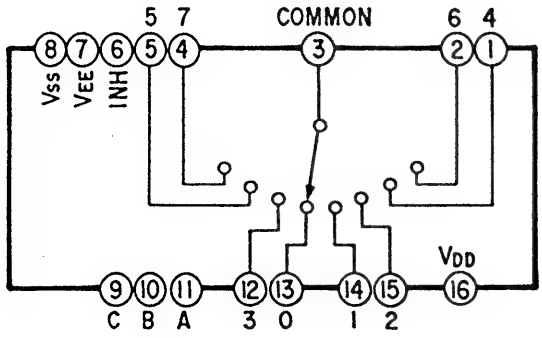
IC118 LC7821



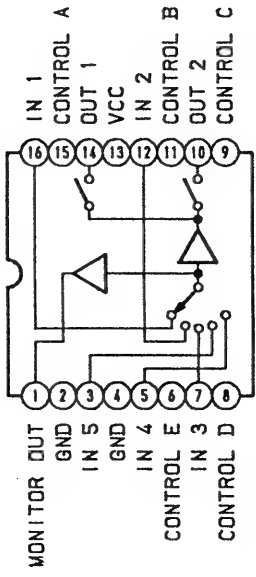
IC301, 302 BA6208



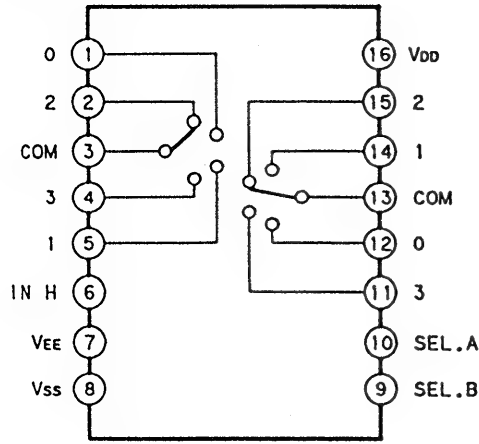
IC303 TC4051BPHB



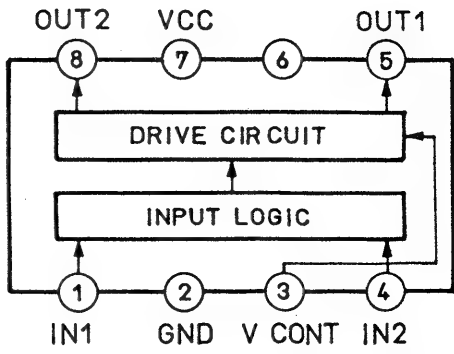
IC501 BA7625



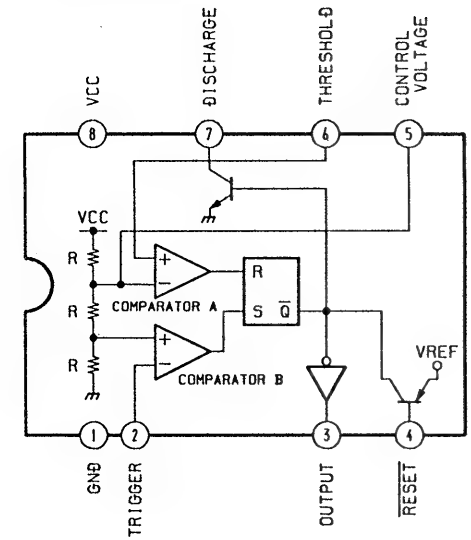
IC304 TC4052BPHB



IC801 LB1639

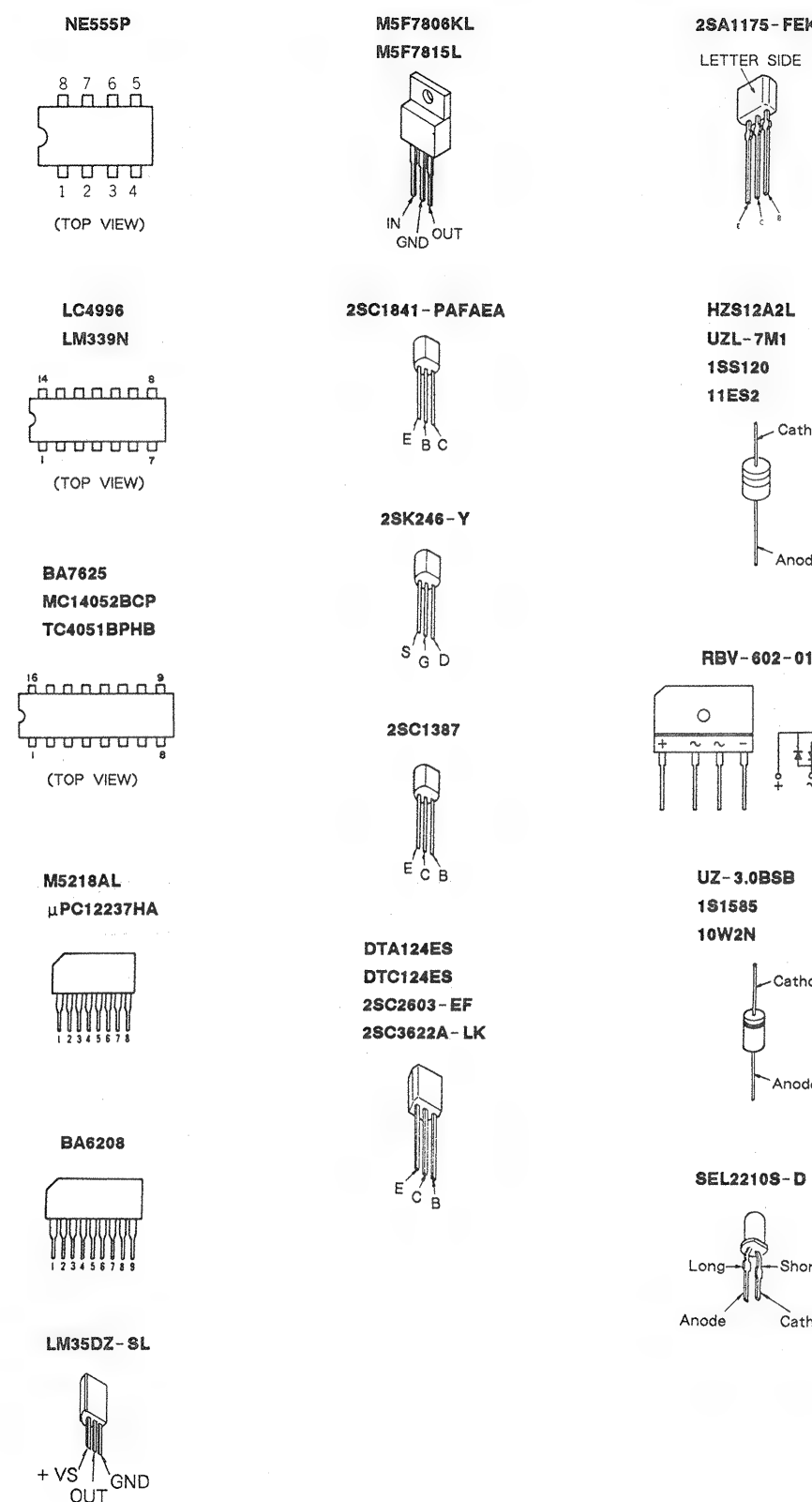


IC402 NE555P





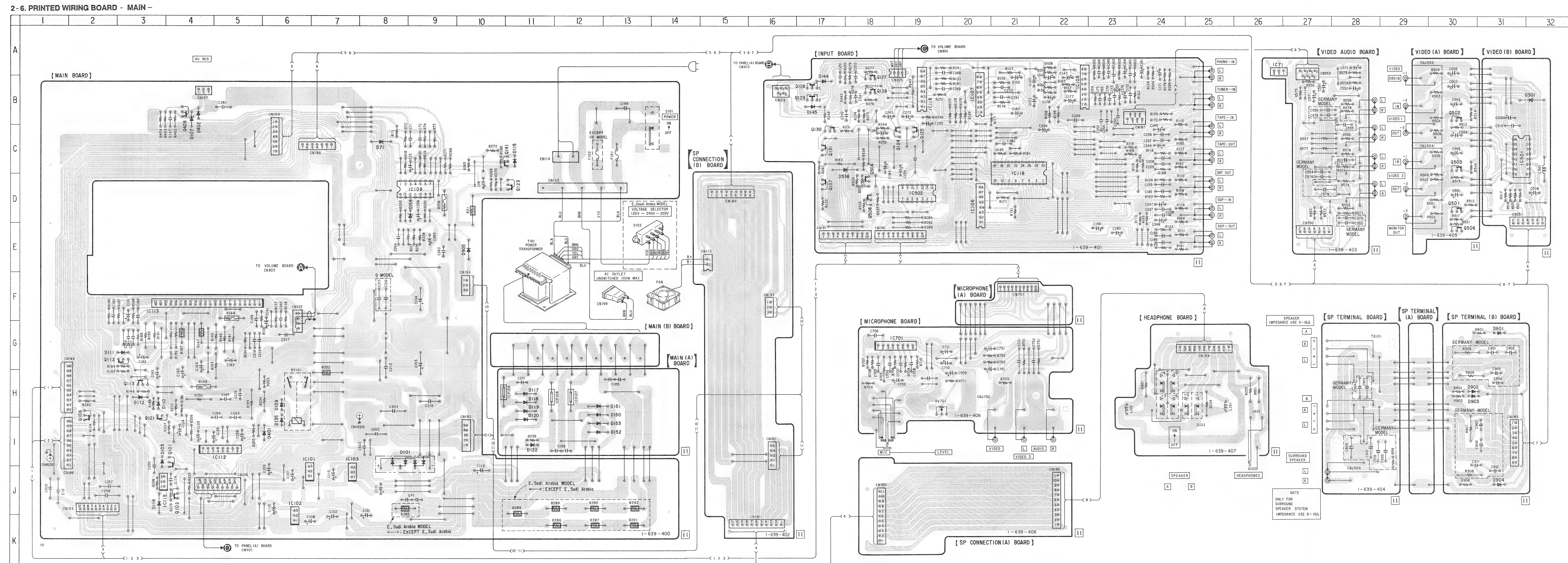
## 2-5. SEMICONDUCTOR LEAD LAYOUTS



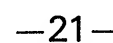
Ref. No.	Location
D71	C-8
D101	I-8
D105	I-3
D107	B-4
D109	H-6
D110	H-3
D111	G-3
D112	H-3
D115	C-11
D116	J-3
D117	H-11
D118	H-11
D119	H-11
D120	H-11
D122	I-11
D135	I-6
D144	B-17
D145	B-17
D150	H-13
D151	H-13
D152	I-13
D153	I-13
D158	D-9
D401	I-6
D402	B-4
D501	B-32
D538	C-18
D901	G-31
D902	H-30
D903	H-30
D904	J-31
D905	E-10
IC71	A-26
IC101	J-6
IC102	J-6
IC103	J-7
IC105	B-22
IC106	D-20
IC107	B-20
IC108	D-9
IC112	I-5
IC113	F-4
IC115	J-3
IC116	B-19
IC118	C-21
IC501	C-31
IC502	D-19
IC701	G-19
Q101	I-4
Q102	J-4
Q106	H-2
Q107	D-17
Q112	G-3
Q113	H-3
Q121	H-3
Q123	D-11
Q124	C-19
Q125	C-19
Q126	B-18
Q127	B-18
Q128	B-17
Q129	B-17
Q130	C-17
Q131	C-17
Q141	C-11
Q408	B-4
Q501	D-30
Q502	B-30
Q503	C-30
Q504	D-18
Q506	E-30
Q508	D-18

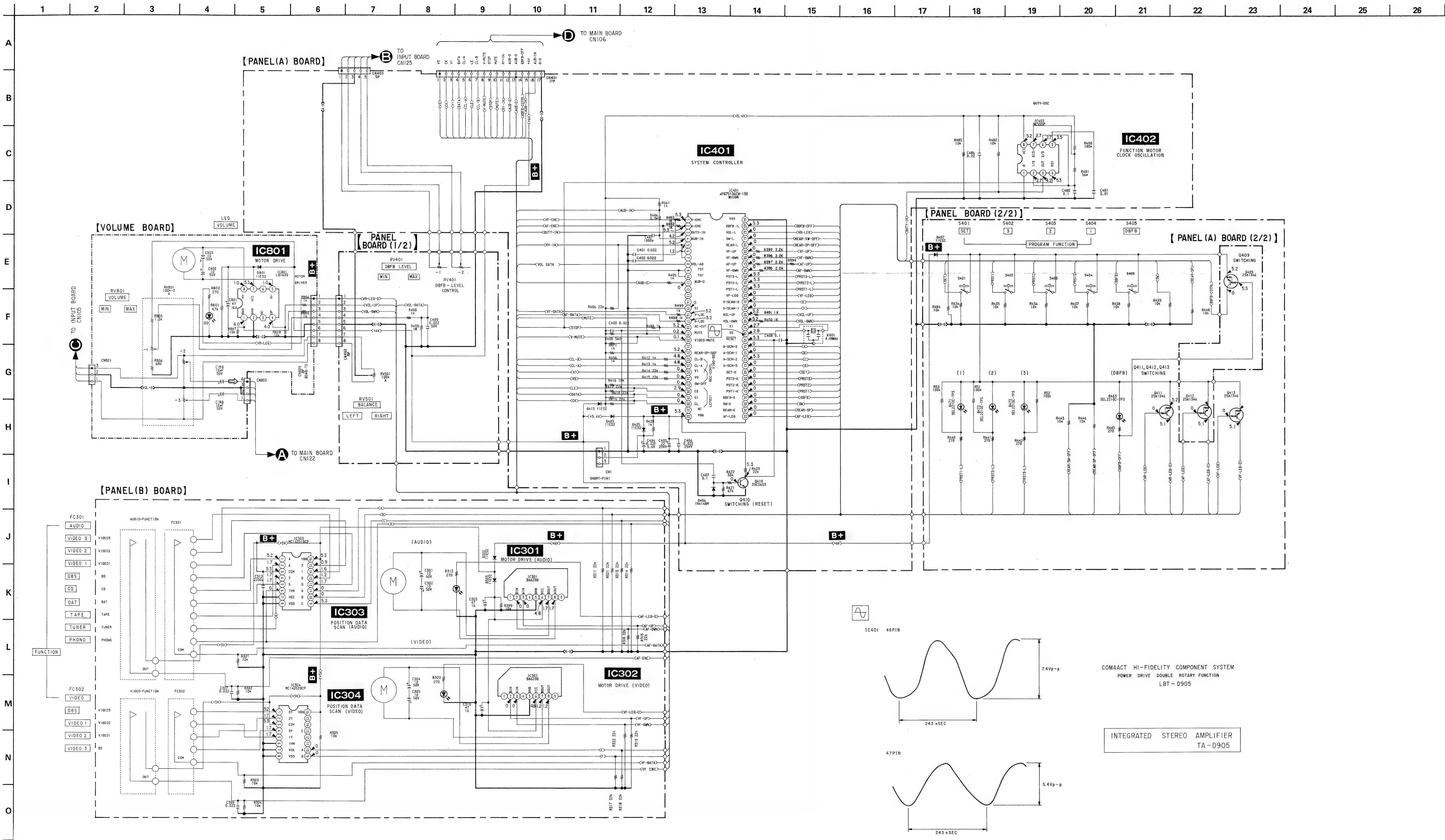
**Note on Mounting Diagram:**

- ○ — : parts extracted from the component side
- ■ ■ ■ ■ : component side.







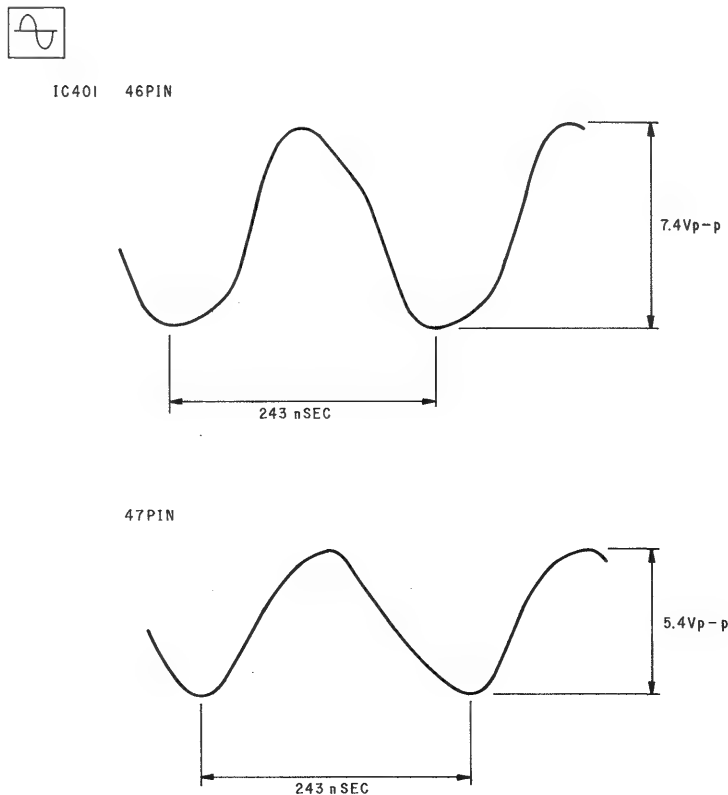


**Note on Schematic Diagram:**

- All capacitors are in  $\mu F$  unless otherwise noted,  $pF$ :  $\mu F$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- $\square$ : nonflammable resistor.
- $\square$ : fusible resistor.

**Note:** The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

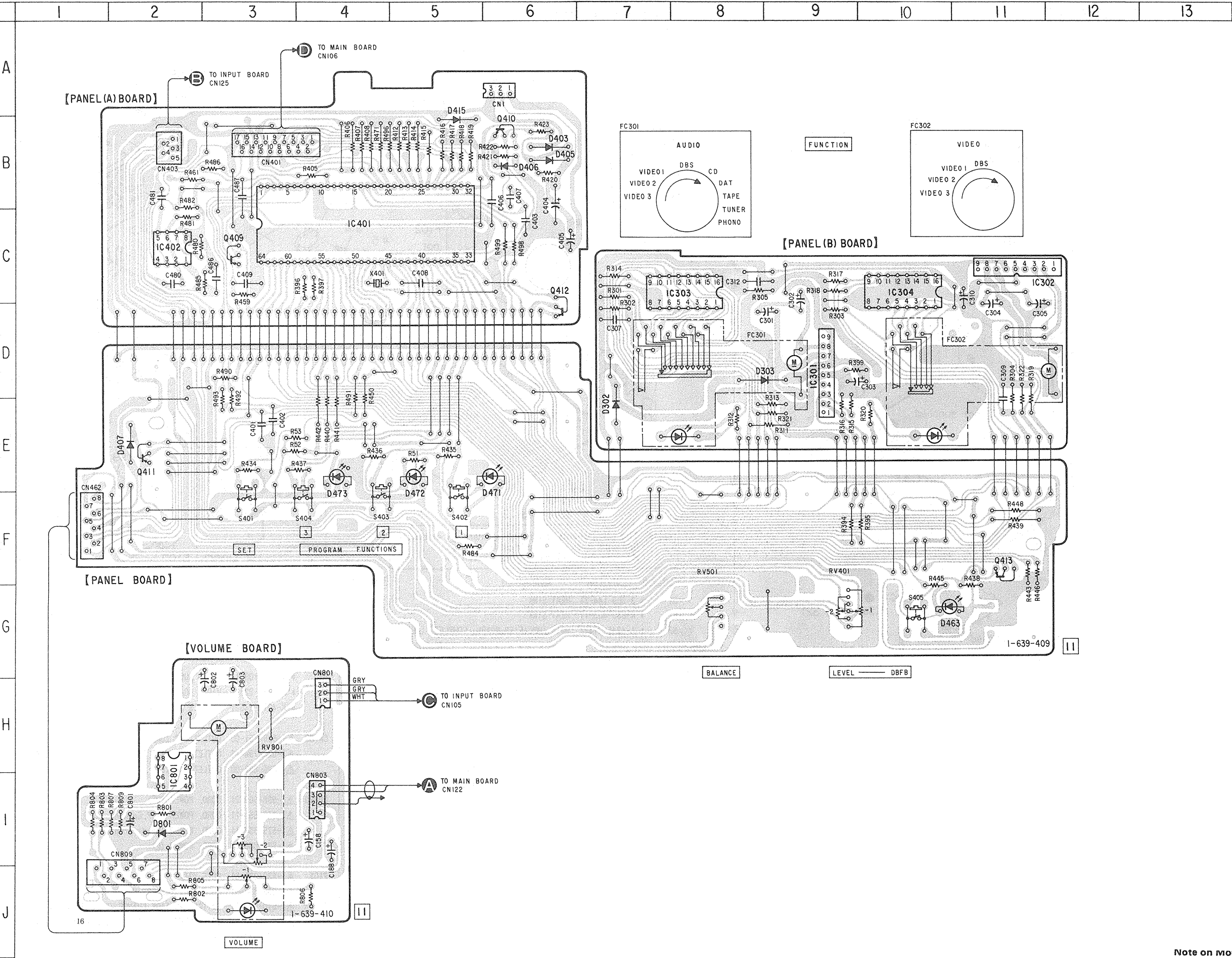
- $B+$ : B+ Line
- $B-$ : B- Line
- no mark: No-signal, PHONO MODE
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (input impedance 10M  $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\Rightarrow$ : PHONO



COMAECT HI-FIDELITY COMPONENT SYSTEM  
POWER DRIVE DOUBLE ROTARY FUNCTION  
LBT - D905

INTEGRATED STEREO AMPLIFIER  
TA - D905





• Semiconductor Location

Ref. No.	Location
D302	E-7
D303	D-9
D403	B-6
D405	B-6
D406	B-6
D407	E-2
D415	B-5
D463	G-11
D471	E-6
D472	E-5
D473	E-4
D801	I-2
IC301	D-9
IC302	C-11
IC303	C-8
IC304	C-10
IC401	C-4
IC402	C-2
IC801	H-2
Q409	C-3
Q410	B-6
Q411	E-2
Q412	D-6
Q413	F-11

Note on Mounting Diagram:  
• ○ : parts extracted from the component side.  
• ■ : component side.

## SECTION 3

### EXPLODED VIEWS



**NOTE :**

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts  
Example :  
KNOB, BALANCE (WHITE)...(RED)  

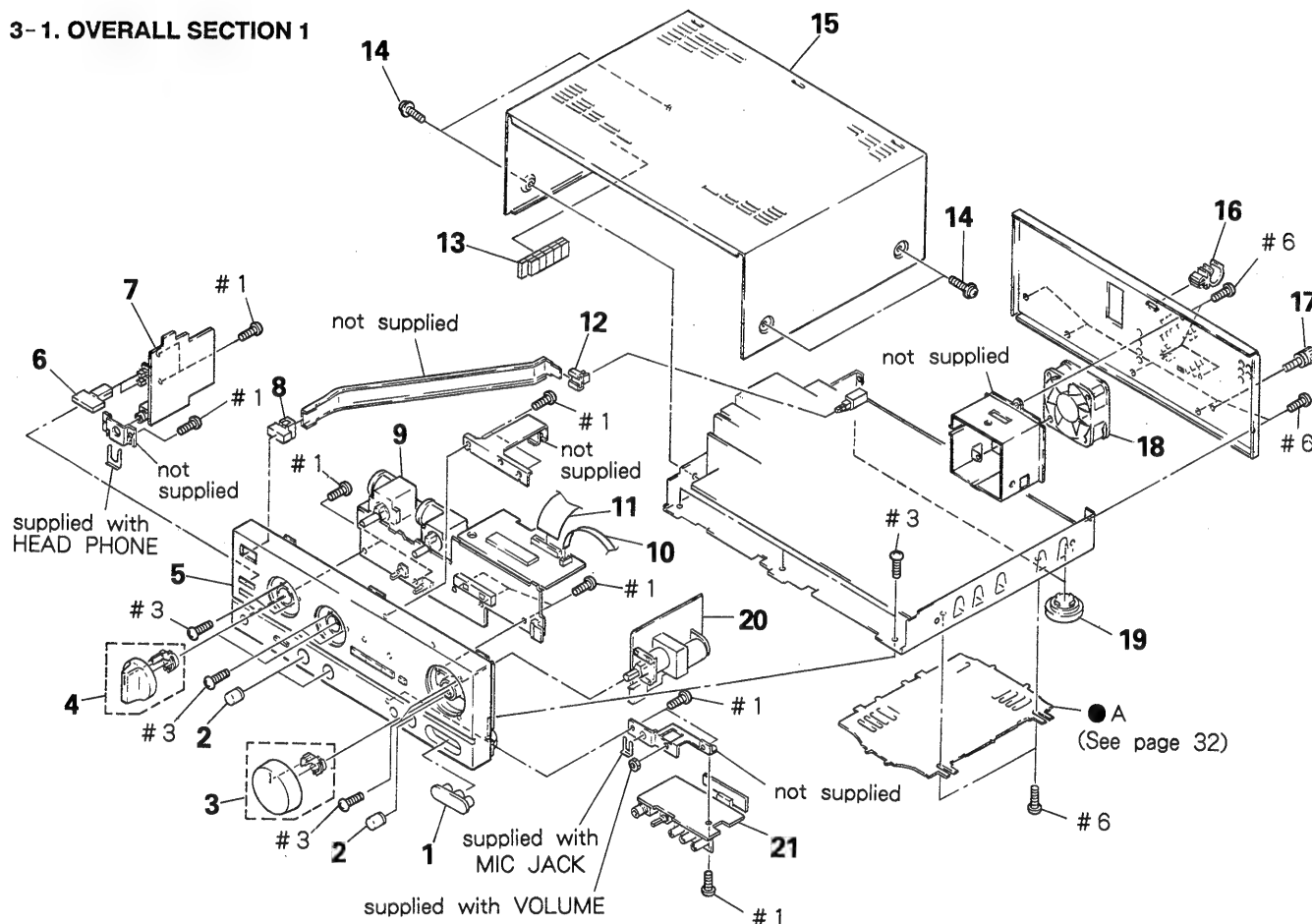
↑  
Parts color

↑  
Cabinet's color

- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

### 3-1. OVERALL SECTION 1

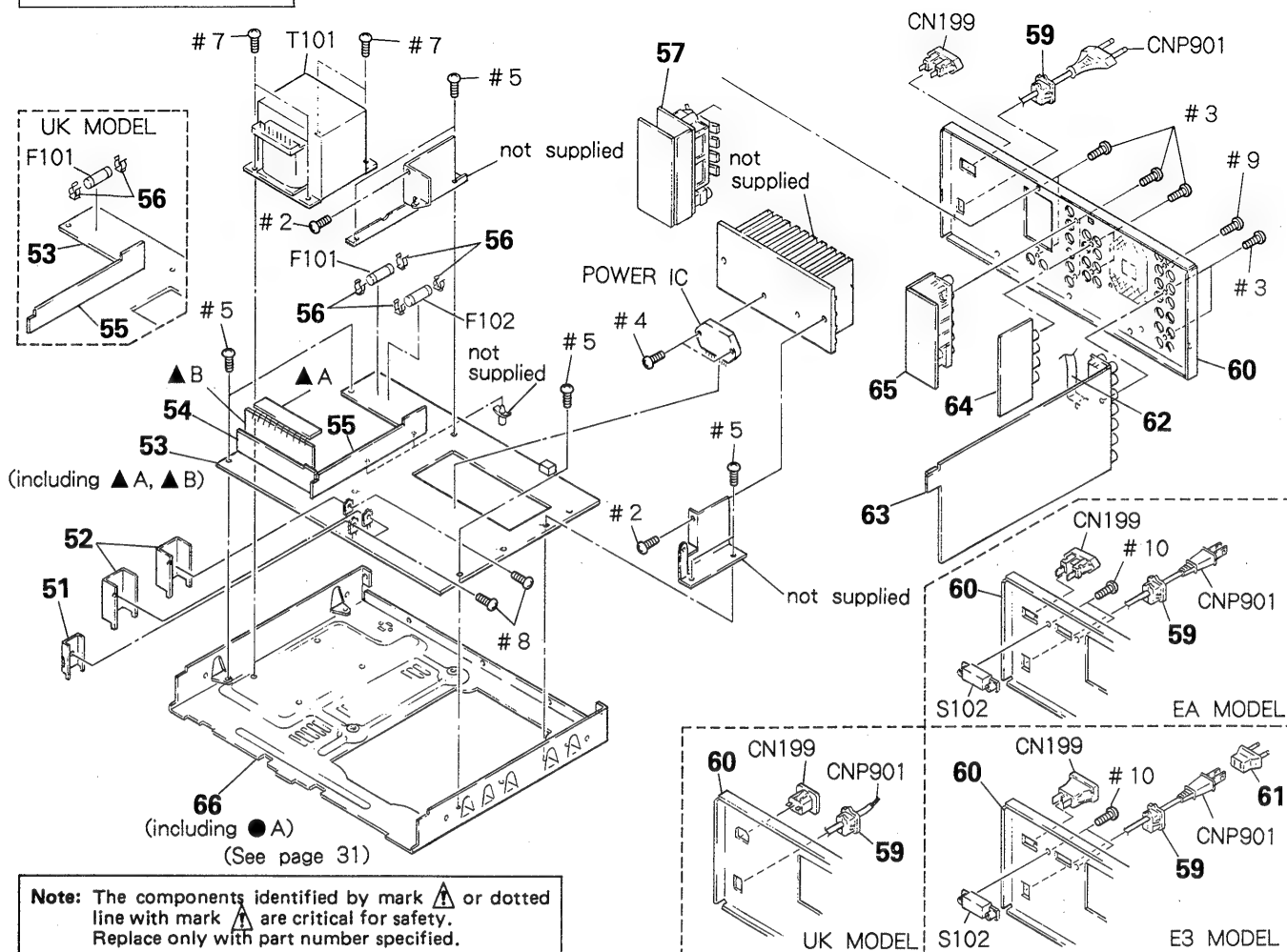


<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
1	4-937-367-01	COVER (PIN JACK) (AEP, UK, Germany, Italian)		11	1-690-102-11	WIRE, FLAT TYPE (17 CORE)	
2	3-349-039-11	KNOB (VOL)		12	4-866-342-00	JOINT (B), KNOB	
3	X-4941-027-1	KNOB (DIA. 47) ASSY, ROUND		13	* 4-911-047-01	VIBRATION CONTROL (D)	
4	X-4941-026-1	KNOB (DIA. 36) ASSY, SQUARE		14	3-363-099-01	SCREW (CASE +3X8 TP2)	
5	X-4941-493-1	PANEL ASSY, FRONT		15	* 4-944-980-01	CASE	
6	4-937-308-01	BUTTON (SP)		16	* 3-646-086-11	HOLDER, ROD	
7	* 1-639-407-11	HEADPHONE BOARD		17	3-706-165-00	SCREW	
8	4-921-919-01	BUTTON (P)		18	1-541-889-11	MOTOR, DC FAN	
9	* A-4345-228-A	PANEL BOARD, COMPLETE		19	4-934-884-01	FOOT	
10	1-690-100-11	WIRE, FLAT TYPE (5 CORE)		20	* 1-639-410-11	VOLUME BOARD	
				21	* 1-639-408-11	MICROPHONE BOARD	

### 3-2. OVERALL SECTION 2

▲ A : MAIN (B) BOARD  
▲ B : MAIN (A) BOARD

EA : Saudi Arabia



Ref. No.	Part No.	Description	Remarks
51	* 3-309-144-21	HEAT SINK	
52	* 4-880-403-11	HEAT SINK	
53	* A-4345-214-A	MAIN AMPLIFIER BOARD, COMPLETE (AEP, Italian)	(including ▲A, ▲B)
	* A-4345-215-A	MAIN AMPLIFIER BOARD, COMPLETE (Germany)	(including ▲A, ▲B)
	* A-4345-230-A	MAIN AMPLIFIER BOARD, COMPLETE (UK)	(including ▲A, ▲B)
	* A-4345-231-A	MAIN AMPLIFIER BOARD, COMPLETE (E, Saudi Arabia)	(including ▲A, ▲B)
54	* 1-639-406-11	SP CONNECTION (A) BOARD	
55	* 1-639-402-11	SP CONNECTION (B) BOARD	
56	* 1-533-213-31	HOLDER FUSE	
57	* 1-639-404-11	SP TERMINAL BOARD	
59	* 3-703-244-00	BUSHING (2104), CORD (AEP, UK, Germany, Italian, Saudi Arabia)	
	* 3-703-571-11	BUSHING (S) (4516), CORD (E)	
60	* 4-944-324-11	PANEL, BACK (AEP)	
	* 4-944-324-21	PANEL, BACK (UK)	
	* 4-944-324-31	PANEL, BACK (Germany)	
	* 4-944-324-41	PANEL, BACK (Italian)	
	* 4-944-324-51	PANEL, BACK (E)	
	* 4-944-324-61	PANEL, BACK (Saudi Arabia)	

Ref. No.	Part No.	Description	Remarks
62	1-690-101-11	WIRE, FLAT TYPE (7 CORE)	
63	* A-4345-216-A	INPUT BOARD, COMPLETE (AEP, UK, E, Italian, Saudi Arabia)	
	* A-4345-217-A	INPUT BOARD, COMPLETE (Germany)	
64	* 1-639-403-11	VIDEO AUDIO BOARD	
65	* A-4345-223-A	VIDEO BOARD, COMPLETE	
66	* X-4917-246-1	CHASSIS ASSY (including ●A)	
CN199	▲1-526-751-00	OUTLET, AC (UK)	
	▲1-526-794-11	OUTLET, AC (AEP, Germany, Italian, Saudi Arabia)	
	▲1-526-882-00	OUTLET, AC (E)	
CNP901	▲1-556-560-21	CORD, POWER (UK)	
	▲1-575-651-11	CORD, POWER (AEP, Germany, Italian)	
	▲1-575-654-11	CORD, POWER (Saudi Arabia)	
	▲1-575-656-11	CORD, POWER (E)	
F101	▲1-532-388-51	FUSE (2A)	
F102	▲1-532-388-51	FUSE (2A) (EXCEPT UK)	
S102	▲1-570-307-11	SWITCH, VOLTAGE CHANGE (E, Saudi Arabia)	
T101	▲1-450-526-11	TRANSFORMER, POWER (AEP, UK, Germany, Italian)	
	▲1-450-527-11	TRANSFORMER, POWER (E, Saudi Arabia)	

**INPUT****SP CONNECTION(B)****VIDEO AUDIO****SP TERMINAL**

## SECTION 4

### ELECTRICAL PARTS LIST

**NOTE :**

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...,  $\mu$ PA...,  
uPB...,  $\mu$ PB..., uPC...,  $\mu$ PC...,  
uPD...,  $\mu$ PD...
- CAPACITORS:  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* A-4345-216-A	INPUT BOARD, COMPLETE (AEP, UK, E, IT, Saudi Arabia)			C172	1-162-282-31	CERAMIC 100PF 10% 50V	
* A-4345-217-A	INPUT BOARD, COMPLETE (Germany)	*****		C173	1-162-219-31	CERAMIC 68PF 5% 50V	
* 1-639-402-11	SP CONNECTION (B) BOARD	*****		C174	1-126-022-11	ELECT 47uF 20% 16V	
* 1-639-403-11	VIDEO AUDIO BOARD	*****		C175	1-130-480-00	MYLAR 0.0056uF 5% 50V	
* 1-639-404-11	SP TERMINAL BOARD	*****		C176	1-130-473-00	MYLAR 0.0015uF 5% 50V	
< CAPACITOR >				C177	1-124-464-11	ELECT 0.22uF 20% 50V	
C122	1-126-049-11	ELECT 22uF 20% 25V		C178	1-126-049-11	ELECT 22uF 20% 25V	
C123	1-126-049-11	ELECT 22uF 20% 25V		C180	1-124-910-11	ELECT 47uF 20% 50V	
C141	1-126-161-11	ELECT 2.2uF 20% 50V		C182	1-124-910-11	ELECT 47uF 20% 50V	
C142	1-162-282-31	CERAMIC 100PF 10% 50V		C184	1-126-049-11	ELECT 22uF 20% 25V	
C143	1-162-219-31	CERAMIC 68PF 5% 50V		C185	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C144	1-126-022-11	ELECT 47uF 20% 16V		C186	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C145	1-130-480-00	MYLAR 0.0056uF 5% 50V		C187	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C146	1-130-473-00	MYLAR 0.0015uF 5% 50V		C204	1-126-301-11	ELECT 1uF 20% 50V	
C147	1-124-464-11	ELECT 0.22uF 20% 50V		C206	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C148	1-126-049-11	ELECT 22uF 20% 25V		C207	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C150	1-124-910-11	ELECT 47uF 20% 50V		C208	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C152	1-124-910-11	ELECT 47uF 20% 50V		C209	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C154	1-126-049-11	ELECT 22uF 20% 25V		C237	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C155	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)		C238	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C156	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)		C241	1-136-164-00	FILM 0.082uF 5% 50V	
C157	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)		C242	1-136-176-00	FILM 0.82uF 5% 50V	
C171	1-126-161-11	ELECT 2.2uF 20% 50V		C243	1-126-059-11	ELECT 10uF 20% 50V	

## INPUT

## SP CONNECTION(B)

## VIDEO AUDIO

## SP TERMINAL

Ref. No.	Part No.	Description	Remarks
C244	1-126-300-11	ELECT 0.47uF 20% 50V	
C245	1-126-049-11	ELECT 22uF 20% 25V	
C246	1-126-049-11	ELECT 22uF 20% 25V	
C247	1-126-049-11	ELECT 22uF 20% 25V	
C248	1-126-049-11	ELECT 22uF 20% 25V	
C249	1-162-290-31	CERAMIC 470PF 10% 50V	
C250	1-162-290-31	CERAMIC 470PF 10% 50V	
C251	1-136-176-00	FILM 0.82uF 5% 50V	
C252	1-136-164-00	FILM 0.082uF 5% 50V	
C253	1-162-290-31	CERAMIC 470PF 10% 50V	
C254	1-162-290-31	CERAMIC 470PF 10% 50V	
C255	1-126-300-11	ELECT 0.47uF 20% 50V	
C266	1-162-219-31	CERAMIC 68PF 5% 50V	
C269	1-162-219-31	CERAMIC 68PF 5% 50V	
C270	1-162-207-31	CERAMIC 22PF 5% 50V	
C272	1-126-059-11	ELECT 10uF 20% 50V	
C282	1-164-159-11	CERAMIC 0.1uF 50V	
C291	1-162-207-31	CERAMIC 22PF 5% 50V	
C551	1-124-234-00	ELECT 22uF 20% 16V	
C552	1-126-049-11	ELECT 22uF 20% 25V	
C553	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C554	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C555	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C556	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C571	1-124-234-00	ELECT 22uF 20% 16V	
C572	1-126-049-11	ELECT 22uF 20% 25V	
C575	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C576	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C577	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C578	1-162-286-31	CERAMIC 220PF 10% 50V (Germany)	
C579	1-161-379-00	CERAMIC 0.01uF 20% 25V (Germany)	
C901	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C902	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	

Ref. No.	Part No.	Description	Remarks
C903	1-161-379-00	CERAMIC 0.01uF 20% 25V (Germany)	
C904	1-161-379-00	CERAMIC 0.01uF 20% 25V (Germany)	
C905	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C906	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C907	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C908	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C909	1-161-379-00	CERAMIC 0.01uF 20% 25V (Germany)	
C910	1-161-379-00	CERAMIC 0.01uF 20% 25V (Germany)	
C911	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C912	1-136-163-00	FILM 0.068uF 5% 50V (Germany)	
C919	1-164-159-11	CERAMIC 0.1uF 50V (Germany)	
C920	1-164-159-11	CERAMIC 0.1uF 50V (Germany)	
< CONNECTOR >			
CN113	* 1-564-517-11	PLUG, CONNECTOR 2P	
CN125	* 1-568-848-11	SOCKET, CONNECTOR 5P	
CN181	1-569-497-11	SOCKET, CONNECTOR 11P	
CN182	* 1-569-500-11	PIN, CONNECTOR 5P	
CN184	* 1-569-504-11	PIN, CONNECTOR 9P	
CN185	* 1-569-495-11	SOCKET, CONNECTOR 9P	
CN187	* 1-568-826-11	SOCKET, CONNECTOR 7P	
CN190	* 1-569-505-11	PIN, CONNECTOR 10P	
CN191	* 1-569-505-11	PIN, CONNECTOR 10P	
CN192	* 1-569-499-11	PIN, CONNECTOR 3P	
CN550	* 1-569-502-11	PIN, CONNECTOR 7P	
CN553	* 1-568-850-11	SOCKET, CONNECTOR 7P	
CNJ101	1-565-352-11	JACK, PIN 2P (TUNER IN, PHONO IN)	
CNJ102	1-565-320-11	JACK, PIN 6P (TAPE: IN/OUT)	
CNJ103	1-565-320-11	JACK, PIN 6P (SDP: IN/OUT, DAT OUT)	
CNJ501	1-565-258-11	JACK, PIN 4P (VIDEO 2 IN)	
CNJ502	1-565-258-11	JACK, PIN 4P (VIDEO 1 IN)	
CNJ506	1-568-572-11	JACK, PIN 2P (SURROUND SPEAKER)	
TB101	1-537-336-21	TERMINAL BOARD (SP) (A/B)	

## INPUT

## SP CONNECTION(B)

## VIDEO AUDIO

## SP TERMINAL

Ref. No.	Part No.	Description	Remarks
< DIODE >			
D144	8-719-912-20	DIODE 1SS120	
D145	8-719-912-20	DIODE 1SS120	
D538	8-719-933-74	DIODE HZS12A2L	
D901	8-719-815-85	DIODE 1S1585	
D902	8-719-815-85	DIODE 1S1585	
D903	8-719-815-85	DIODE 1S1585	
D904	8-719-815-85	DIODE 1S1585	
< IC >			
IC71	8-759-512-73	IC LM35DZ-SL	
IC105	8-759-710-73	IC NJM4580L	
IC106	8-759-634-50	IC M5218AL	
IC107	8-759-634-50	IC M5218AL	
IC116	8-759-634-50	IC M5218AL	
IC118	8-759-805-13	IC LC7821	
IC502	8-759-801-01	IC LC4966	
< TRANSISTOR >			
Q107	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q124	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q125	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q126	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q127	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q128	8-729-224-61	TRANSISTOR 2SK246-Y	
Q129	8-729-224-61	TRANSISTOR 2SK246-Y	
Q130	8-729-900-63	TRANSISTOR DTA124ES	
Q131	8-729-900-36	TRANSISTOR DTC124ES	
Q504	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q508	8-729-119-76	TRANSISTOR 2SA1175-HFE	
< RESISTOR >			
R102	1-249-441-11	CARBON 100K 5% 1/4W (Germany)	
R103	1-249-416-11	CARBON 820 5% 1/4W (Germany)	
R104	1-247-897-11	CARBON 560K 5% 1/4W (Germany)	
R105	1-249-437-11	CARBON 47K 5% 1/4W (Germany)	
R106	1-249-417-11	CARBON 1K 5% 1/4W (Germany)	
R107	1-249-441-11	CARBON 100K 5% 1/4W (Germany)	
R108	1-249-405-11	CARBON 100 5% 1/4W	
R109	1-247-903-00	CARBON 1M 5% 1/4W	
R110	1-249-417-11	CARBON 1K 5% 1/4W	
R111	1-249-413-11	CARBON 470 5% 1/4W	

Ref. No.	Part No.	Description	Remarks
R113	1-247-903-00	CARBON 1M 5% 1/4W	
R114	1-249-417-11	CARBON 1K 5% 1/4W	
R115	1-249-417-11	CARBON 1K 5% 1/4W	
R116	1-247-903-00	CARBON 1M 5% 1/4W	
R117	1-249-417-11	CARBON 1K 5% 1/4W	
R118	1-247-903-00	CARBON 1M 5% 1/4W	
R119	1-247-903-00	CARBON 1M 5% 1/4W	
R120	1-249-417-11	CARBON 1K 5% 1/4W	
R121	1-249-437-11	CARBON 47K 5% 1/4W	
R123	1-249-441-11	CARBON 100K 5% 1/4W	
R124	1-249-437-11	CARBON 47K 5% 1/4W	
R125	1-249-437-11	CARBON 47K 5% 1/4W	
R126	1-249-437-11	CARBON 47K 5% 1/4W	
R127	1-249-441-11	CARBON 100K 5% 1/4W	
R128	1-249-417-11	CARBON 1K 5% 1/4W	
R131	1-249-417-11	CARBON 1K 5% 1/4W	
R133	1-249-429-11	CARBON 10K 5% 1/4W	
R152	1-249-441-11	CARBON 100K 5% 1/4W	
R153	1-249-416-11	CARBON 820 5% 1/4W	
R154	1-247-897-11	CARBON 560K 5% 1/4W	
R155	1-249-437-11	CARBON 47K 5% 1/4W	
R156	1-249-417-11	CARBON 1K 5% 1/4W	
R157	1-249-441-11	CARBON 100K 5% 1/4W	
R158	1-249-405-11	CARBON 100 5% 1/4W	
R159	1-249-417-11	CARBON 1K 5% 1/4W	
R160	1-247-903-00	CARBON 1M 5% 1/4W	
R161	1-249-413-11	CARBON 470 5% 1/4W	
R163	1-247-903-00	CARBON 1M 5% 1/4W	
R164	1-249-417-11	CARBON 1K 5% 1/4W	
R165	1-249-417-11	CARBON 1K 5% 1/4W	
R166	1-247-903-00	CARBON 1M 5% 1/4W	
R167	1-249-417-11	CARBON 1K 5% 1/4W	
R168	1-247-903-00	CARBON 1M 5% 1/4W	
R169	1-247-903-00	CARBON 1M 5% 1/4W	
R170	1-249-417-11	CARBON 1K 5% 1/4W	
R171	1-249-437-11	CARBON 47K 5% 1/4W	
R173	1-249-441-11	CARBON 100K 5% 1/4W	
R174	1-249-437-11	CARBON 47K 5% 1/4W	
R175	1-249-437-11	CARBON 47K 5% 1/4W	
R176	1-249-437-11	CARBON 47K 5% 1/4W	
R177	1-249-441-11	CARBON 100K 5% 1/4W	
R178	1-249-417-11	CARBON 1K 5% 1/4W	
R181	1-249-417-11	CARBON 1K 5% 1/4W	
R183	1-247-895-00	CARBON 470K 5% 1/4W	
R184	1-249-433-11	CARBON 22K 5% 1/4W	



## INPUT

## SP CONNECTION(B)

## VIDEO AUDIO

## SP TERMINAL

## MAIN

Ref. No.	Part No.	Description	Remarks
R185	1-249-441-11	CARBON 100K 5% 1/4W	
R231	1-249-433-11	CARBON 22K 5% 1/4W	
R241	1-249-425-11	CARBON 4.7K 5% 1/4W	
R243	1-249-418-11	CARBON 1.2K 5% 1/4W	
R244	1-249-429-11	CARBON 10K 5% 1/4W	
R245	1-249-425-11	CARBON 4.7K 5% 1/4W	
R246	1-249-425-11	CARBON 4.7K 5% 1/4W	
R248	1-247-887-00	CARBON 220K 5% 1/4W	
R251	1-249-425-11	CARBON 4.7K 5% 1/4W	
R253	1-249-418-11	CARBON 1.2K 5% 1/4W	
R255	1-249-429-11	CARBON 10K 5% 1/4W	
R259	1-249-405-11	CARBON 100 5% 1/4W	
R260	1-249-405-11	CARBON 100 5% 1/4W	
R267	1-249-417-11	CARBON 1K 5% 1/4W	
R274	1-249-423-11	CARBON 3.3K 5% 1/4W	
R275	1-249-423-11	CARBON 3.3K 5% 1/4W	
R276	1-249-412-11	CARBON 390 5% 1/4W	
R277	1-249-412-11	CARBON 390 5% 1/4W	
R278	1-249-438-11	CARBON 56K 5% 1/4W	
R279	1-249-438-11	CARBON 56K 5% 1/4W	
R282	1-249-417-11	CARBON 1K 5% 1/4W	
R283	1-249-417-11	CARBON 1K 5% 1/4W	
R284	1-249-417-11	CARBON 1K 5% 1/4W	
R294	1-249-441-11	CARBON 100K 5% 1/4W	
R295	1-249-441-11	CARBON 100K 5% 1/4W	
R534	1-249-433-11	CARBON 22K 5% 1/4W	
R535	1-249-433-11	CARBON 22K 5% 1/4W	
R536	1-249-433-11	CARBON 22K 5% 1/4W	
R537	1-249-433-11	CARBON 22K 5% 1/4W	
R538	1-249-413-11	CARBON 470 5% 1/4W	
R552	1-247-903-00	CARBON 1M 5% 1/4W	
R553	1-249-417-11	CARBON 1K 5% 1/4W	
R554	1-249-417-11	CARBON 1K 5% 1/4W	
R555	1-247-903-00	CARBON 1M 5% 1/4W	
R556	1-249-417-11	CARBON 1K 5% 1/4W	
R557	1-247-903-00	CARBON 1M 5% 1/4W	
R558	1-249-417-11	CARBON 1K 5% 1/4W	
R559	1-247-903-00	CARBON 1M 5% 1/4W	
R572	1-247-903-00	CARBON 1M 5% 1/4W	
R573	1-249-417-11	CARBON 1K 5% 1/4W	
R574	1-249-417-11	CARBON 1K 5% 1/4W	
R575	1-247-903-00	CARBON 1M 5% 1/4W	
R576	1-249-417-11	CARBON 1K 5% 1/4W	
R577	1-247-903-00	CARBON 1M 5% 1/4W	
R578	1-249-417-11	CARBON 1K 5% 1/4W	

Ref. No.	Part No.	Description	Remarks
R579	1-247-903-00	CARBON 1M 5% 1/4W	
R901	1-249-435-11	CARBON 33K 5% 1/4W	
R902	1-249-435-11	CARBON 33K 5% 1/4W	
R903	1-249-435-11	CARBON 33K 5% 1/4W	
R904	1-249-435-11	CARBON 33K 5% 1/4W	
R905	1-247-727-11	CARBON 10 5% 1/2W	(Germany)
R906	1-247-727-11	CARBON 10 5% 1/2W	(Germany)
R907	1-247-727-11	CARBON 10 5% 1/2W	(Germany)
R908	1-247-727-11	CARBON 10 5% 1/2W	(Germany)
*****			
* A-4345-214-A MAIN AMPLIFIER BOARD, COMPLETE (AEP, Italian)			
*****			
* A-4345-230-A MAIN AMPLIFIER BOARD, COMPLETE (UK)			
*****			
* A-4345-231-A MAIN AMPLIFIER BOARD, COMPLETE (E, Saudi Arabia)			
*****			
* A-4345-215-A MAIN AMPLIFIER BOARD, COMPLETE (Germany)			
*****			
* 1-533-213-31 HOLDER, FUSE			
* 3-309-144-21 HEAT SINK			
* 4-880-403-11 HEAT SINK			
7-682-548-04 SCREW +BVTT 3X8 (S)			
< CAPACITOR >			
C15	1-124-478-11	ELECT 100uF 20% 25V	(EXCEPT. Germany)
C15	1-126-023-11	ELECT 100uF 20% 16V	(Germany)
C16	1-126-022-11	ELECT 47uF 20% 16V	(EXCEPT. Germany)
C16	1-124-478-11	ELECT 100uF 20% 25V	(Germany)
C19	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C20	1-161-061-11	CERAMIC 0.068uF 10% 50V	
C41	1-102-394-11	CERAMIC 0.01uF 250V	
C71	1-161-494-00	CERAMIC 0.022uF 25V	
C72	1-161-494-00	CERAMIC 0.022uF 25V	

## MAIN

Ref. No.	Part No.	Description	Remarks
C101	1-126-105-11	ELECT 1000uF 20% 35V	
C102	1-126-105-11	ELECT 1000uF 20% 35V	
C103	1-128-334-11	ELECT 6800uF 20% 63V	
C104	1-128-334-11	ELECT 6800uF 20% 63V	
C105	1-102-394-11	CERAMIC 0.01uF 250V	
C106	1-102-394-11	CERAMIC 0.01uF 250V	
C107	1-126-059-11	ELECT 10uF 20% 50V	
C108	1-126-059-11	ELECT 10uF 20% 50V	
C109	1-124-120-11	ELECT 220uF 20% 25V	
C110	1-124-120-11	ELECT 220uF 20% 25V	
C111	1-126-059-11	ELECT 10uF 20% 50V	
C112	1-124-962-11	ELECT 2200uF 20% 25V	
C114	1-164-159-11	CERAMIC 0.1uF 50V	
C115	1-124-473-11	ELECT 1000uF 20% 10V	
C124	1-124-587-11	ELECT 220uF 20% 6.3V	
C125	1-124-587-11	ELECT 220uF 20% 6.3V	
C126	1-126-163-11	ELECT 4.7uF 20% 50V	
C127	1-161-494-00	CERAMIC 0.022uF 25V	
C159	1-162-282-31	CERAMIC 100PF 10% 50V	
C160	1-162-282-31	CERAMIC 100PF 10% 50V	
C161	1-124-994-11	ELECT 100uF 20% 10V	
C162	1-124-910-11	ELECT 47uF 20% 50V	
C163	1-124-916-11	ELECT 22uF 20% 63V	
C165	1-124-572-11	ELECT 100uF 20% 63V	
C167	1-136-163-00	FILM 0.068uF 5% 50V	
C189	1-162-282-31	CERAMIC 100PF 10% 50V	
C190	1-162-282-31	CERAMIC 100PF 10% 50V	
C191	1-124-994-11	ELECT 100uF 20% 10V	
C192	1-124-910-11	ELECT 47uF 20% 50V	
C193	1-124-572-11	ELECT 100uF 20% 63V	
C194	1-136-163-00	FILM 0.068uF 5% 50V	
C199	1-161-744-00	CERAMIC 0.01uF 400V	
C201	1-136-165-00	FILM 0.1uF 5% 50V	
C205	1-164-159-11	CERAMIC 0.1uF 50V	
C213	1-161-377-00	CERAMIC 0.0047uF 20% 50V (Germany)	
C214	1-161-377-00	CERAMIC 0.0047uF 20% 50V (Germany)	
C215	1-161-377-00	CERAMIC 0.0047uF 20% 50V (Germany)	
C216	1-161-377-00	CERAMIC 0.0047uF 20% 50V (Germany)	

Ref. No.	Part No.	Description	Remarks
C218	1-162-207-31	CERAMIC 22PF 5% 50V	
C219	1-162-207-31	CERAMIC 22PF 5% 50V	
C220	1-162-207-31	CERAMIC 22PF 5% 50V	
C221	1-162-207-31	CERAMIC 22PF 5% 50V	
C222	1-136-163-00	FILM 0.068uF 5% 50V	
C223	1-136-163-00	FILM 0.068uF 5% 50V	
C236	1-126-059-11	ELECT 10uF 20% 63V	
C256	1-124-443-00	ELECT 100uF 20% 10V	
C257	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C258	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C263	1-136-153-00	FILM 0.01uF 5% 50V	
C264	1-161-494-00	CERAMIC 0.022uF 25V	
C265	1-126-049-11	ELECT 22uF 20% 25V	
C281	1-164-159-11	CERAMIC 0.1uF 50V	
C922	1-161-379-00	CERAMIC 0.01uF 20% 25V (Germany)	
C924	1-164-159-11	CERAMIC 0.1uF 50V	
C925	1-161-379-00	CERAMIC 0.01uF 20% 25V	
< CONNECTOR >			
CN103	* 1-565-439-11	PIN, CONNECTOR (PCB) 10P	
CN104	* 1-569-493-11	SOCKET, CONNECTOR 7P	
CN106	* 1-568-836-11	SOCKET, CONNECTOR 17P	
CN107	* 1-565-561-11	PIN, CONNECTOR 3P (AU BUS)	
CN114	* 1-564-321-00	PIN, CONNECTOR 2P (AEP, E, Germany, Italian, Saudi Arabia)	
CN183	* 1-569-491-11	SOCKET, CONNECTOR 5P	
CN186	* 1-569-493-11	SOCKET, CONNECTOR 7P	
CN188	* 1-569-496-11	SOCKET, CONNECTOR 10P	
CN189	* 1-569-496-11	SOCKET, CONNECTOR 10P	
CN193	1-569-490-11	SOCKET, CONNECTOR 3P	
< DIODE >			
D71	8-719-912-20	DIODE 1SS120	
D101	8-719-302-38	DIODE RBV-602-01	
D105	8-719-912-20	DIODE 1SS120	
D107	8-719-000-84	DIODE UZL-7M1	
D109	8-719-815-85	DIODE 1S1585	
D110	8-719-815-85	DIODE 1S1585	
D111	8-719-815-85	DIODE 1S1585	
D112	8-719-815-85	DIODE 1S1585	
D115	8-719-912-20	DIODE 1SS120	
D116	8-719-200-82	DIODE 11ES2	

## MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
D117	8-719-200-77	DIODE 10E2N		R72	1-249-429-11	CARBON 10K 5% 1/4W	
D118	8-719-200-77	DIODE 10E2N		R73	1-247-858-11	CARBON 13K 5% 1/4W (AEP, UK, Germany, Italian)	
D119	8-719-200-77	DIODE 10E2N		R73	1-249-431-11	CARBON 15K 5% 1/4W (E, Saudi Arabia)	
D120	8-719-200-77	DIODE 10E2N		R74	1-249-442-11	CARBON 510 5% 1/4W (AEP, UK, Germany, Italian)	
D122	8-719-912-20	DIODE 1SS120		R74	1-249-415-11	CARBON 680 5% 1/4W (E, Saudi Arabia)	
D135	8-719-815-85	DIODE 1S1585		R134	1-249-429-11	CARBON 10K 5% 1/4W	
D150	8-719-200-77	DIODE 10E2N		R136	1-249-417-11	CARBON 1K 5% 1/4W	
D151	8-719-200-77	DIODE 10E2N		R137	1-247-874-11	CARBON 62K 5% 1/4W	
D152	8-719-200-77	DIODE 10E2N		R138	1-249-412-11	CARBON 390 5% 1/4W	
D153	8-719-200-77	DIODE 10E2N		R139	1-247-874-11	CARBON 62K 5% 1/4W	
D158	8-719-010-17	DIODE UZ-3. OBSB		R140	1-247-760-11	CARBON 4.7K 5% 1/2W	
D401	8-719-815-85	DIODE 1S1585		R141	1-247-760-11	CARBON 4.7K 5% 1/2W	
D402	8-719-912-20	DIODE 1SS120		R142	1-247-752-11	CARBON 1K 5% 1/2W	
D905	8-719-815-85	DIODE 1S1585		R143	1-247-752-11	CARBON 1K 5% 1/2W	
		< IC >		R144	△1-212-881-11	FUSIBLE 100 5% 1/4W F	
IC101	8-759-604-34	IC M5F7815L		R145	1-249-417-11	CARBON 1K 5% 1/4W	
IC102	8-759-245-87	IC TA7915S		R146	1-249-431-11	CARBON 15K 5% 1/4W	
IC103	8-759-630-49	IC M5F7806KL		R147	1-217-156-00	RES, METAL PLATE 0.22	
IC108	8-759-984-03	IC LM339N		R148	1-249-441-11	CARBON 100K 5% 1/4W	
IC112	8-759-111-68	IC uPC1237HA		R149	△1-212-881-11	FUSIBLE 100 5% 1/4W F	
IC113	8-749-921-04	IC STK4211MK2 (AEP, UK, Germany, Italian)		R150	1-247-727-11	CARBON 10 5% 1/2W	
IC113	8-749-922-65	IC STK4221MK2 (E, Saudi Arabia)		R186	1-249-417-11	CARBON 1K 5% 1/4W	
IC115	8-759-635-63	IC M51943BSL		R187	1-247-874-11	CARBON 62K 5% 1/4W	
ICP106	1-532-842-11	IC, LINK		R188	1-249-412-11	CARBON 390 5% 1/4W	
ICP107	1-532-842-11	IC, LINK		R189	1-247-874-11	CARBON 62K 5% 1/4W	
ICP109	1-532-842-11	IC, LINK		R190	1-247-760-11	CARBON 4.7K 5% 1/2W	
		< TRANSISTOR >		R191	1-247-760-11	CARBON 4.7K 5% 1/2W	
Q101	8-729-620-05	TRANSISTOR 2SC2603-EF		R192	1-249-417-11	CARBON 1K 5% 1/4W	
Q102	8-729-900-63	TRANSISTOR DTA124ES		R193	1-249-431-11	CARBON 15K 5% 1/4W	
Q106	8-729-900-36	TRANSISTOR DTC124ES		R194	1-249-441-11	CARBON 100K 5% 1/4W	
Q112	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA		R195	1-247-727-11	CARBON 10 5% 1/2W	
Q113	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA		R196	1-249-437-11	CARBON 47K 5% 1/4W	
Q121	8-729-900-63	TRANSISTOR DTA124ES		R197	1-217-156-00	RES, METAL PLATE 0.22	
Q123	8-729-801-93	TRANSISTOR 2SD1387		R202	△1-216-457-00	METAL OXIDE 1.2K 5% 2W F	
Q141	8-729-801-93	TRANSISTOR 2SD1387		R203	1-249-427-11	CARBON 6.8K 5% 1/4W	
Q408	8-729-620-05	TRANSISTOR 2SC2603-EF		R204	1-249-427-11	CARBON 6.8K 5% 1/4W	
		< RESISTOR >		R205	1-249-437-11	CARBON 47K 5% 1/4W	
R18	1-247-887-00	CARBON 220K 5% 1/4W		R206	1-249-441-11	CARBON 100K 5% 1/4W	
R19	1-249-433-11	CARBON 22K 5% 1/4W		R207	1-249-429-11	CARBON 10K 5% 1/4W	
R20	1-249-433-11	CARBON 22K 5% 1/4W		R210	1-249-438-11	CARBON 56K 5% 1/4W	
R21	△1-215-885-00	METAL OXIDE 58 5% 2W F					
R71	1-249-421-11	CARBON 2.2K 5% 1/4W					

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

MAIN

PANEL

SP CONNECTION(A)

HEADPHONE

MICROPHONE

VOLUME

Ref. No.	Part No.	Description	Remarks
R219	1-249-437-11	CARBON 47K 5% 1/4W	
R226	1-247-834-11	CARBON 1.3K 5% 1/4W	
R227	1-249-410-11	CARBON 270 5% 1/4W	
R228	1-249-431-11	CARBON 15K 5% 1/4W	
R229	1-249-425-11	CARBON 4.7K 5% 1/4W	
R238	1-249-425-11	CARBON 4.7K 5% 1/4W	
R239	1-249-429-11	CARBON 10K 5% 1/4W	
R240	1-249-417-11	CARBON 1K 5% 1/4W	
R256	1-249-433-11	CARBON 22K 5% 1/4W	
R258	△1-212-968-00	FUSIBLE 27 5% 1/2W F	
R265	1-249-423-11	CARBON 3.3K 5% 1/4W	
R268	1-249-423-11	CARBON 3.3K 5% 1/4W	
R269	1-249-421-11	CARBON 2.2K 5% 1/4W	
R270	1-249-441-11	CARBON 100K 5% 1/4W	
R271	1-249-423-11	CARBON 3.3K 5% 1/4W	
R272	1-249-417-11	CARBON 1K 5% 1/4W	
R280	1-249-441-11	CARBON 100K 5% 1/4W	
R285	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R286	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R287	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R288	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R289	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R290	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R291	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R292	△1-214-789-00	RES, METAL PLATE 0.1 10% 5W (E, Saudi Arabia)	
R402	1-249-393-11	CARBON 10 5% 1/4W	
R403	1-249-425-11	CARBON 4.7K 5% 1/4W	
R404	1-249-429-11	CARBON 10K 5% 1/4W	
< RELAY >			
RY101	1-515-765-11	RELAY	
< SWITCH >			
S101	△1-554-920-51	SWITCH, PUSH (AC POWER) (1 KEY)	

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\* A-4345-228-A PANEL BOARD, COMPLETE

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\* 1-639-406-11 SP CONNECTION (A) BOARD

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\* 1-639-407-11 HEADPHONE BOARD

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\* 1-639-408-11 MICROPHONE BOARD

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\* 1-639-410-11 VOLUME BOARD

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Ref. No.	Part No.	Description	Remarks
	* 4-942-010-01	HOLDER (1 GANG)	
	* 4-942-012-01	HOLDER (3 GANG), LED	
< CAPACITOR >			
C158	1-126-059-11	ELECT 10uF 20% 50V	
C188	1-126-059-11	ELECT 10uF 20% 50V	
C301	1-126-059-11	ELECT 10uF 20% 50V	
C302	1-126-059-11	ELECT 10uF 20% 50V	
C303	1-126-022-11	ELECT 47uF 20% 16V	
C304	1-126-059-11	ELECT 10uF 20% 50V	
C305	1-126-059-11	ELECT 10uF 20% 50V	
C307	1-161-494-00	CERAMIC 0.022uF 25V	
C309	1-161-494-00	CERAMIC 0.022uF 25V	
C310	1-126-022-11	ELECT 47uF 20% 16V	
C312	1-161-494-00	CERAMIC 0.022uF 25V	
C401	1-161-494-00	CERAMIC 0.022uF 25V	
C402	1-161-494-00	CERAMIC 0.022uF 25V	
C403	1-161-494-00	CERAMIC 0.022uF 25V	
C404	1-125-486-11	DUBLE LAYERS 0.22F 5.5V	
C405	1-126-049-11	ELECT 22uF 20% 25V	
C406	1-161-494-00	CERAMIC 0.022uF 25V	
C407	1-136-153-00	FILM 0.01uF 5% 50V	
C408	1-164-159-11	CERAMIC 0.1uF 50V	
C409	1-161-494-00	CERAMIC 0.022uF 25V	
C480	1-136-165-00	FILM 0.1uF 5% 50V	
C481	1-136-153-00	FILM 0.01uF 5% 50V	
C486	1-161-494-00	CERAMIC 0.022uF 25V	
C487	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C501	1-124-471-00	ELECT 1000uF 20% 6.3V	
C502	1-126-059-11	ELECT 10uF 20% 50V	
C503	1-124-471-00	ELECT 1000uF 20% 6.3V	
C504	1-126-059-11	ELECT 10uF 20% 50V	
C505	1-124-471-00	ELECT 1000uF 20% 6.3V	
C506	1-126-059-11	ELECT 10uF 20% 50V	
C508	1-126-059-11	ELECT 10uF 20% 50V	
C509	1-126-049-11	ELECT 22uF 20% 25V	
C510	1-161-494-00	CERAMIC 0.022uF 25V	
C701	1-126-049-11	ELECT 22uF 20% 25V	
C703	1-126-161-11	ELECT 2.2uF 20% 50V	
C704	1-161-377-00	CERAMIC 0.0047uF 30% 16V	
C705	1-162-219-31	CERAMIC 68PF 5% 50V	
C706	1-162-290-31	CERAMIC 470PF 10% 50V	
C707	1-161-377-00	CERAMIC 0.0047uF 30% 16V	
C708	1-162-293-31	CERAMIC 820PF 10% 50V	

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## PANEL

## SP CONNECTION(A)

## HEADPHONE

## MICROPHONE

## VOLUME

Ref. No.	Part No.	Description	Remarks
C709	1-124-463-00	ELECT 0.1uF 20% 50V	
C710	1-126-049-11	ELECT 22uF 20% 25V	
C711	1-126-049-11	ELECT 22uF 20% 25V	
C721	1-162-286-31	CERAMIC 220PF 10% 50V	
		(Germany)	
C751	1-126-049-11	ELECT 22uF 20% 25V	
C752	1-162-286-31	CERAMIC 220PF 10% 50V	
		(Germany)	
C801	1-126-022-11	ELECT 47uF 20% 16V	
C802	1-126-059-11	ELECT 10uF 20% 50V	
C803	1-126-059-11	ELECT 10uF 20% 50V	

## &lt; CONNECTOR &gt;

CN1	* 1-564-506-11	PLUG, CONNECTOR 3P
CN180	* 1-569-506-11	PIN, CONNECTOR 11P
CN194	* 1-569-506-11	PIN, CONNECTOR 11P
CN195	1-569-497-11	SOCKET, CONNECTOR 11P
CN401	* 1-568-836-11	SOCKET, CONNECTOR 17P

CN403	* 1-568-824-11	SOCKET, CONNECTOR 5P
CN462	* 1-568-320-11	PLUG, CONNECTOR 8P
CN551	* 1-569-502-11	PIN, CONNECTOR 7P
CN701	* 1-565-438-11	SOCKET, CONNECTOR (PCB) 10P
CN801	* 1-564-496-11	PIN, CONNECTOR 3P

CN803	* 1-564-519-11	PLUG, CONNECTOR 4P
CN809	1-568-319-11	SOCKET, CONNECTOR 8P
CNJ503	1-565-351-21	JACK, PIN 3P (VIDEO 1 IN, DBS IN)
CNJ504	1-565-351-21	JACK, PIN 3P (VIDEO 2 IN, MONITOR OUT)
CNJ702	1-580-174-21	JACK, PIN (3P FRONT) (VIDEO 3 IN)

## &lt; DIODE &gt;

D302	8-719-200-82	DIODE 11ES2
D303	8-719-200-82	DIODE 11ES2
D403	8-719-200-82	DIODE 11ES2
D405	8-719-200-82	DIODE 11ES2
D406	8-719-912-20	DIODE 1SS120

D407	8-719-200-82	DIODE 11ES2
D415	8-719-200-82	DIODE 11ES2
D463	8-719-301-39	DIODE SEL2210S-D
D471	8-719-301-39	DIODE SEL2210S-D
D472	8-719-301-39	DIODE SEL2210S-D

D473	8-719-301-39	DIODE SEL2210S-D
D501	8-719-200-82	DIODE 11ES2
D801	8-719-200-82	DIODE 11ES2

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC301	8-759-962-08	IC BA6208	
IC302	8-759-962-08	IC BA6208	
IC303	8-759-208-06	IC TC4051BPHB	
IC304	8-759-000-48	IC MC14052BCP	
IC401	8-759-154-28	IC uPD75106CW-190	
IC402	8-759-991-02	IC NE555P	
IC501	8-759-991-77	IC BA7625	
IC701	8-759-710-73	IC NJM4580L	
IC801	8-759-820-62	IC LB1639	

## &lt; JACK &gt;

J601	1-507-796-71	JACK (HEADPHONES)
J701	1-580-439-11	JACK, LARGE TYPE (MIC)

## &lt; COIL &gt;

L101	* 1-420-872-00	COIL, AIR CORE
L102	* 1-420-872-00	COIL, AIR CORE
L501	1-410-521-11	INDUCTOR 100uH

## &lt; TRANSISTOR &gt;

Q409	8-729-900-63	TRANSISTOR DTA124ES
Q410	8-729-620-05	TRANSISTOR 2SC2603-EF
Q411	8-729-900-63	TRANSISTOR DTA124ES
Q412	8-729-900-63	TRANSISTOR DTA124ES
Q413	8-729-900-63	TRANSISTOR DTA124ES

Q501	8-729-119-77	TRANSISTOR 2SA1175-FEK
Q502	8-729-119-77	TRANSISTOR 2SA1175-FEK
Q503	8-729-119-77	TRANSISTOR 2SA1175-FEK
Q506	8-729-620-05	TRANSISTOR 2SC2603-EF

## &lt; RESISTOR &gt;

R51	1-249-441-11	CARBON 100K 5% 1/4W
R52	1-249-441-11	CARBON 100K 5% 1/4W
R53	1-249-441-11	CARBON 100K 5% 1/4W
R224	1-247-727-11	CARBON 10 5% 1/2W
R225	1-247-749-11	CARBON 560 5% 1/2W

R301	1-249-429-11	CARBON 10K 5% 1/4W
R302	1-249-429-11	CARBON 10K 5% 1/4W
R303	1-249-429-11	CARBON 10K 5% 1/4W
R304	1-249-429-11	CARBON 10K 5% 1/4W
R305	1-249-429-11	CARBON 10K 5% 1/4W

**PANEL****SP CONNECTION(A)****HEADPHONE****MICROPHONE****VOLUME**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>			<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>		
R311	1-249-433-11	CARBON	22K	5%	1/4W	R448	1-249-429-11	CARBON	10K	5%	1/4W
R312	1-249-410-11	CARBON	270	5%	1/4W	R450	1-249-417-11	CARBON	1K	5%	1/4W
R313	1-249-433-11	CARBON	22K	5%	1/4W	R459	1-247-903-00	CARBON	1M	5%	1/4W
R314	1-249-433-11	CARBON	22K	5%	1/4W	R461	1-249-417-11	CARBON	1K	5%	1/4W
R315	1-249-433-11	CARBON	22K	5%	1/4W	R471	1-249-417-11	CARBON	1K	5%	1/4W
R316	1-249-433-11	CARBON	22K	5%	1/4W	R480	1-247-885-00	CARBON	180K	5%	1/4W
R317	1-249-433-11	CARBON	22K	5%	1/4W	R481	1-249-438-11	CARBON	56K	5%	1/4W
R318	1-249-433-11	CARBON	22K	5%	1/4W	R482	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-249-433-11	CARBON	22K	5%	1/4W	R484	1-249-429-11	CARBON	10K	5%	1/4W
R320	1-249-410-11	CARBON	270	5%	1/4W	R485	1-249-429-11	CARBON	10K	5%	1/4W
R321	1-249-433-11	CARBON	22K	5%	1/4W	R486	1-249-424-11	CARBON	3.9K	5%	1/4W
R322	1-249-433-11	CARBON	22K	5%	1/4W	R490	1-249-417-11	CARBON	1K	5%	1/4W
R394	1-249-421-11	CARBON	2.2K	5%	1/4W	R491	1-249-417-11	CARBON	1K	5%	1/4W
R395	1-249-421-11	CARBON	2.2K	5%	1/4W	R492	1-249-417-11	CARBON	1K	5%	1/4W
R396	1-249-421-11	CARBON	2.2K	5%	1/4W	R493	1-249-417-11	CARBON	1K	5%	1/4W
R397	1-249-421-11	CARBON	2.2K	5%	1/4W	R496	1-249-417-11	CARBON	1K	5%	1/4W
R399	1-249-429-11	CARBON	10K	5%	1/4W	R498	1-249-417-11	CARBON	1K	5%	1/4W
R405	1-249-417-11	CARBON	1K	5%	1/4W	R499	1-249-417-11	CARBON	1K	5%	1/4W
R406	1-249-433-11	CARBON	22K	5%	1/4W	R501	1-249-403-11	CARBON	68	5%	1/4W
R407	1-249-417-11	CARBON	1K	5%	1/4W	R502	1-249-429-11	CARBON	10K	5%	1/4W
R408	1-249-414-11	CARBON	560	5%	1/4W	R503	1-247-804-11	CARBON	75	5%	1/4W
R412	1-249-417-11	CARBON	1K	5%	1/4W	R504	1-249-429-11	CARBON	10K	5%	1/4W
R413	1-249-417-11	CARBON	1K	5%	1/4W	R505	1-249-403-11	CARBON	68	5%	1/4W
R414	1-249-433-11	CARBON	22K	5%	1/4W	R506	1-247-804-11	CARBON	75	5%	1/4W
R415	1-249-433-11	CARBON	22K	5%	1/4W	R507	1-249-429-11	CARBON	10K	5%	1/4W
R416	1-249-429-11	CARBON	10K	5%	1/4W	R508	1-249-403-11	CARBON	68	5%	1/4W
R417	1-249-433-11	CARBON	22K	5%	1/4W	R509	1-247-804-11	CARBON	75	5%	1/4W
R418	1-249-433-11	CARBON	22K	5%	1/4W	R511	1-249-408-11	CARBON	180	5%	1/4W
R419	1-249-433-11	CARBON	22K	5%	1/4W	R512	1-249-408-11	CARBON	180	5%	1/4W
R420	1-249-417-11	CARBON	1K	5%	1/4W	R513	1-249-408-11	CARBON	180	5%	1/4W
R421	1-249-437-11	CARBON	47K	5%	1/4W	R514	1-249-408-11	CARBON	180	5%	1/4W
R422	1-249-435-11	CARBON	33K	5%	1/4W	R515	1-249-408-11	CARBON	180	5%	1/4W
R423	1-249-433-11	CARBON	22K	5%	1/4W	R516	1-249-408-11	CARBON	180	5%	1/4W
R434	1-249-429-11	CARBON	10K	5%	1/4W	R517	1-249-417-11	CARBON	1K	5%	1/4W
R435	1-249-429-11	CARBON	10K	5%	1/4W	R518	1-249-417-11	CARBON	1K	5%	1/4W
R436	1-249-429-11	CARBON	10K	5%	1/4W	R520	1-249-433-11	CARBON	22K	5%	1/4W
R437	1-249-429-11	CARBON	10K	5%	1/4W	R521	1-249-433-11	CARBON	22K	5%	1/4W
R438	1-249-429-11	CARBON	10K	5%	1/4W	R531	1-249-429-11	CARBON	10K	5%	1/4W
R439	1-249-429-11	CARBON	10K	5%	1/4W	R601	1-247-727-11	CARBON	10	5%	1/2W
R440	1-249-410-11	CARBON	270	5%	1/4W	R651	1-247-749-11	CARBON	560	5%	1/2W
R441	1-249-410-11	CARBON	270	5%	1/4W	R701	1-249-417-11	CARBON	1K	5%	1/4W
R442	1-249-410-11	CARBON	270	5%	1/4W	R702	1-247-903-00	CARBON	1M	5%	1/4W
R443	1-249-429-11	CARBON	10K	5%	1/4W	R703	1-247-804-11	CARBON	75	5%	1/4W
R445	1-249-410-11	CARBON	270	5%	1/4W	R704	1-249-441-11	CARBON	100K	5%	1/4W
R446	1-249-429-11	CARBON	10K	5%	1/4W	R705	1-249-417-11	CARBON	1K	5%	1/4W

## PANEL

## SP CONNECTION(A)

## HEADPHONE

## MICROPHONE

## VOLUME

Ref. No.	Part No.	Description	Remarks
R706	1-249-429-11	CARBON 10K 5% 1/4W	
R707	1-249-432-11	CARBON 18K 5% 1/4W	
R708	1-249-417-11	CARBON 1K 5% 1/4W	
R709	1-249-417-11	CARBON 1K 5% 1/4W	
R710	1-249-432-11	CARBON 18K 5% 1/4W	
R711	1-249-417-11	CARBON 1K 5% 1/4W	
R751	1-249-417-11	CARBON 1K 5% 1/4W	
R752	1-247-903-00	CARBON 1M 5% 1/4W	
R801	1-249-425-11	CARBON 4.7K 5% 1/4W	
R802	1-249-410-11	CARBON 270 5% 1/4W	
R803	1-249-417-11	CARBON 1K 5% 1/4W	
R804	1-249-417-11	CARBON 1K 5% 1/4W	
R805	1-247-834-11	CARBON 1.3K 5% 1/4W	
R806	1-249-415-11	CARBON 680 5% 1/4W	
R807	1-249-429-11	CARBON 10K 5% 1/4W	
R809	1-249-429-11	CARBON 10K 5% 1/4W	
< VARIABLE RESISTOR >			
RV401	1-241-307-11	RES. VAR. CARBON 10K/10K (DBFB-LEVEL)	
RV501	1-238-459-11	RES. VAR. CARBON 100K (BALANCE)	
RV701	1-241-301-11	RES. VAR. CARBON 50K (LEVEL)	
RV801	1-238-708-11	RES. VAR. CARBON 10K/100K/100K (VOLUME)	
< SWITCH >			
FC301	1-572-460-11	SWITCH, ROTARY (AUDIO FUNCTION)	
FC302	1-572-554-11	SWITCH, ROTARY (VIDEO FUNCTION)	
S103	1-571-987-11	SWITCH, PUSH (2 KEY) (SPEAKER A/B)	
S401	1-554-303-21	SWITCH, TACTILE (SET)	
S402	1-554-303-21	SWITCH, TACTILE (PROG 1)	
S403	1-554-303-21	SWITCH, TACTILE (PROG 2)	
S404	1-554-303-21	SWITCH, TACTILE (PROG 3)	
S405	1-554-303-21	SWITCH, TACTILE (PROG 4)	
< VIBRATOR >			
X401	1-577-359-21	VIBRATOR, CERAMIC	
*****			
MISCELLANEOUS			
*****			
10	1-690-100-11	WIRE, FLAT TYPE (5 CORE)	
11	1-690-102-11	WIRE, FLAT TYPE (17 CORE)	
18	1-541-889-11	MOTOR, DC FAN	
62	1-690-101-11	WIRE, FLAT TYPE (7 CORE)	
CN199	△1-526-751-00	OUTLET, AC(UK)	

Ref. No.	Part No.	Description	Remarks
CN199	△1-526-794-11	OUTLET, AC(AEP, Germany, Italian, Saudi Arabia)	
CN199	△1-526-882-00	OUTLET, AC(E)	
CNP901	△1-556-560-21	CORD, POWER(UK)	
CNP901	△1-575-651-11	CORD, POWER(AEP, Germany, Italian)	
CNP901	△1-575-654-11	CORD, POWER(Saudi Arabia)	
CNP901	△1-575-656-11	CORD, POWER(E)	
F101	△1-532-388-51	FUSE (2A)	
F102	△1-532-388-51	FUSE (2A) (EXCEPT UK)	
S102	△1-570-307-11	SWITCH, VOLTAGE CHANGE (E, Saudi Arabia)	
T101	△1-450-526-11	TRANSFORMER, POWER (AEP, UK, Germany, Italian)	
T101	△1-450-527-11	TRANSFORMER, POWER (E, Saudi Arabia)	

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## ACCESSORY &amp; PACKING MATERIAL

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3-701-630-00	BAG, POLYETHYLENE (Italian)
3-753-427-11	MANUAL, INSTRUCTION (English, French, Spanish, portuguese) AEP
3-753-427-41	MANUAL, INSTRUCTION (German, Dutch, Swedish, Italian) AEP, Germany, Italian
4-920-940-01	SHEET (A), PROTECTION
* 4-946-088-01	INDIVIDUAL CARTON (AEP, Germany, Italian)
* 4-946-092-01	CUSHION

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## HARDWARE LIST

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# 1	7-621-773-93	SCREW (PANEL 2.6 TP2)
# 2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
# 3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S
# 4	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3
# 5	7-682-547-04	SCREW +BVTT 3X6 (S)
# 6	7-682-547-09	SCREW +BVTT 3X6 (S)
# 7	7-682-560-04	SCREW +BVTT 4X6 (S)
# 8	7-682-548-04	SCREW +BVTT 3X8 (S)
# 9	7-621-849-00	SCREW, TAPPING
#10	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S (E, Saudi Arabia)

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.